Classroom Assessment Resource Package Applied Design, Skills, and Technologies K-12

This resource package was developed by a team of secondary ADST teachers who applied the conceptual framework presented in the Framework for Classroom Assessment to create classroom assessment support materials focused on the Curricular Competencies of the Applied Design, Skills, and Technologies K-12 curriculum. The criteria categories, criteria, and sample applications included in this document have been developed by teachers for teachers. They are not required and are intended only to support teachers when developing their own criteria-based classroom assessment applications to inform their teaching and to support student learning.

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Categories and Criteria for Applied Design, Skills, and Technologies K-12

Inquire and Investigate *1. Generate ideas and explore perspectives* *2. Examine specific ideas and tasks to narrow focus*					
K-3	**4-5**	**6-7**	**8-9**	**10**	**11-12**
• Generate ideas to be used collaboratively • Seek out answers to questions and record and share them • Explore perspectives relevant to the task at hand to create awareness • Follow a given strategy to stay on topic	• Collaboratively explore generated ideas, and screen against criteria • Gather information • Explore perspectives relevant to the task at hand to increase awareness • Use a strategy to stay on topic and narrow focus	• Generate ideas relevant to a topic, then screen and evaluate against constraints • Gather information to gain perspective(s) • Explore and recognize perspectives relevant to the task at hand • Use strategies to narrow focus	• Generate focussed and insightful ideas relevant to a topic, then screen and evaluate against constraints • Gather information to explore and gain perspective(s) • Recognize and defend different perspectives relevant to the task at hand • Use strategies to narrow focus and assess ideas relevant to purpose and task	• Consider generated ideas and create focused and insightful questions relevant to topic(s) to inquire and increase understanding, and screen and evaluate against constraints • Gather focused information to enhance perspective(s) • Recognize, defend, and apply different perspectives relevant to the task at hand • Use a variety of focused strategies to assess and evaluate ideas relevant to purpose(s) and task(s)	• Consider generated ideas and create independently generate focused, insightful and nuanced questions relevant to topic(s) to inquire and increase understanding, and screen and evaluate against constraints • Gather in-depth information to enhance multiple perspective(s) • Recognize, defend, and apply different perspectives relevant to the task at hand, revising through iteration(s) • Use a variety of focused strategies to assess, evaluate and modify ideas relevant to purpose(s) and task(s)

Identify and Acquire *1. Recognize and select the skills, processes, strategies, tools and technologies for given contexts* *2. Develop and adapt the skills, processes, strategies, and technologies required for tasks at hand*					
K-3	**4-5**	**6-7**	**8-9**	**10**	**11-12**
• Observe relevant skills, processes, strategies, tools, technologies appropriate for a process or task, and practice	• Observe and identify relevant skills, processes, strategies, tools, technologies appropriate for a process or task • Develop and practise skills, processes, strategies, tools, technologies, for task(s) at hand	• Identify skills, processes, strategies, tools, technologies, appropriate for a process or task, selecting according to best fit • Acquire, practise and use skills, processes, strategies, tools, technologies, for task(s) at hand	• Assess and justify choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • Acquire, practise, demonstrate and adapt skills, processes, strategies, tools, technologies, required for task(s) at hand	• Assess and justify choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • Investigate, acquire, practise, demonstrate and adapt skills, processes, strategies, tools, technologies, relevant for different contexts	• Assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • Investigate, acquire, practise, and demonstrate skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate

Plan and Create 1. *Recognize, create, and follow steps, working toward a goal* 2. *Implement a plan and iterate, adapt, or modify the plan to personalize or realize a creative vision*					
K-3	**4-5**	**6-7**	**8-9**	**10**	**11-12**
• Explore and/or follow steps to achieve a goal • Use information acquired through trial and error and apply to the planning and creation process	• Outline a plan, to achieve a goal • Gather information and apply to the planning and creation process, and implement the plan	• Develop a plan, to achieve a goal • Gather and identify relevant information to apply to the planning and creation process, and implement the plan, adapting and modifying as needed	• Develop a multi-step plan, to achieve a goal • Gather, identify and refine relevant information and apply to the planning and creation process, and implement the plan, adapting and modifying as needed	• Develop and implement a multi-step plan, to achieve a goal, adapting as needed • Gather, identify and refine relevant information and update and apply through implementation and subsequent iteration(s) of the planning and creation process	• Develop and implement a sophisticated plan, to achieve a goal, adapting as needed • Gather, identify and refine relevant information and update and apply creatively through implementation and subsequent iteration(s) of the planning and creation process

Apply and Connect *1. Develop awareness of choices and decisions based on the task at hand, and their impacts* *2. Examine and act on potential impact to self, others and the design plan/process* *3. Relate to and empathize and communicate with users, audience, community, and environment for given contexts*					
K-3	**4-5**	**6-7**	**8-9**	**10**	**11-12**
• Identify and explore the needs of potential user(s) and discuss feedback	• Explore the needs of potential user(s) and use findings to help shape a design plan • Solicit and discuss feedback	• Explore and understand the needs of potential user(s) and use findings to help shape a design plan • Gather and review feedback	• Empathetically explore and understand the needs of users, and communicate insights • Gather and analyze feedback, and refine and use findings to help shape a design plan	• Empathetically explore and understand the needs of potential users, and communicate insights • Engage with users to identify impacts and refine and use feedback to revise plans and inform further iterations	• Empathetically explore and understand the needs of potential users through multiple iterations, communicating insights as relevant • Engage with users to identify impacts. • Evaluate and synthesize feedback and refine and use findings to revise and inform further iterations

Analyze and Reflect 1. *Analyze processes, skills, plans, designs, and results* 2. *Evaluate and act on findings* 3. *Reflect on self, group, task at hand, plus strategies to compete the task, and share*					
K-3	**4-5**	**6-7**	**8-9**	**10**	**11-12**
• Observe and discuss the design and planning process • Share ideas and acknowledge feedback from others • Reflect on a plan based on personal observations, including collaborative aspects of the planning and design process	• Observe and discuss the design and planning process, the development of a plan, and its objectives • Share ideas and consider feedback from intended audience • Reflect on a design process and provide personal and peer descriptive feedback, including collaborative aspects of the planning and design process	• Observe, discuss, and communicate ideas about the design and planning process, the development of the plan and its objectives • Share and consider ideas and feedback from intended audience • Reflect on a design process, including collaborative aspects of the planning and design process, providing personal and peer descriptive feedback, to generate ideas for improvements to design, process, task, and/or skills	• Assess the design and planning process, and the development of plans and objectives, and the results • Evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design process(es), including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to generate ideas for methodical and practical improvements relevant to intended outcome(s)	• Critically assess the design processes and plan objectives, and the outcome(s) generated; justify decisions, and implement changes • Collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design process(es), including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)	• Critically assess the design processes and plan objectives through each iteration, and the outcome(s) generated; justify decisions, and implement changes • Collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design processes, including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)

Sample Application for ADST 4-5

Design process and robotics

Purpose: To design a robot that will complete a specific task, using the design process

Theme: What is a robot? How can robots be used to improve lives?

Assignment overview

	Teacher considerations
• What is a robot? How do people use robots today, and how might we interact with them in the future? • Students will increase their background knowledge on robots. They will be introduced to different types of robots in use or in development in a variety of fields, such as space exploration. They will also be introduced to the designing, building, and programming processes. • Students will then work in groups to identify real-world challenges and develop design plans for robots to address those challenges. As part of the process, they will pitch their ideas to a specified audience (such as "experts" or members of another class). They will ask questions, make observations, and design a robot to meet a need. • Students will conduct research to learn the basic components of robots and their functions. Using this information, they will define a problem that would be solved with the use of a robot. • Using a set of criteria first developed by the whole class, and then refined in smaller groups, each student will first individually design a robot, sketching out their ideas. Members within each group will then share their ideas, and the group will collaboratively combine ideas to develop a group robot design, incorporating the desired aspects from everyone's contributions. Lastly, they will share their final design with an audience.	• Students have built background knowledge on design thinking through classroom discussions and activities and have completed several STEM challenges. This culminating activity will allow students to explore more deeply robots and the role they play in the real world. • You may wish to tie in Language Arts through appropriate novels (such as *The Wild Robot* by Peter Brown) or other non-fiction sources in a variety of formats (online, video, etc.) • Use a variety of focused strategies to assess, evaluate and modify ideas relevant to purpose(s) and task(s)

Assignment

Students will	Teacher considerations
• With the whole class brainstorm the inquiry question, “What is a robot?” • With a partner, consider how a robot might perform a given task (for example, defusing a bomb, cleaning and vacuuming, arranging chocolates in a box). Answers will vary based on students’ prior knowledge and the knowledge base that has been built as a class. • As a class, brainstorm the questions, “What strengths do robots bring to the task described?” and “What drawbacks might there be to using robots in these applications?”	Building background knowledge is key. Students will have different ideas as to what a robot is. Similarly, they may not be familiar with the depth and breadth of robot activities, or the idea that all robots do not have humanoid form. **Formative assessment** Using a self-check process (coloured cups or red, yellow, and green signs), have students provide non-verbal feedback as to their understanding of the materials so far. Possible statements include: • I can explain what a robot is • I can justify why robots may be better suited than humans to performing certain tasks • I can give examples of the drawbacks or limitations of robots in some situations
• Individually or in groups, students will then conduct guided research to increase understanding of how robots are programmed and that every small function a robot carries out must be thought out and coded.	**Possible activity** Build a jam sandwich for students, responding literally to every command (for example, students say “Pick up bread” and you pick up the entire loaf and then drop it again; students say “Take jam and put on bread” and you stick your hand in the jam jar or put the entire jar on the bread), to show how literal programming is and that robots are not “smart” or intuitive on their own.

• In groups, students use the design process to identify a challenge or problem for a robot to solve in one aspect of daily life. For example, students will:
  ○ Brainstorm perceived problems or enhancements
  ○ Determine the intended audience
  ○ Design interview questions for the intended audience, and conduct interviews
  ○ Compile feedback to solidify what the need or challenge is and how a robot might meet this need
• Individually, students sketch a design for a robot that will tackle the challenge.
• Robot sketches are then shared with the small group, and collaboratively the group creates a group designed robot prototype that draws from each member’s contributions, labelling it to indicate functionality, materials, interactivity, and so on.
	Provide guidance, scaffolding, and facilitation for students as needed.

Students will	Teacher considerations
• Together within their groups, students present their “pitch” to an audience, clearly illustrating how this robot solves an identified problem. • Students obtain feedback (for example, by echoing back to the audience the feedback they have heard) to determine whether the audience has understood the details of their plan. This will provide each group with information as to whether their communications plan and process was effective. • Reflect, individually and within the group, on the design process, their robot designs and plans, their presentation and communication skills, and their collaborative work behaviours.	
Extensions • In small groups, using LEGO Robotics kits or some other building tool, create their robots and test their designs for functionality.	

Assessment ideas

Students may be assessed on various categories and criteria. The choice of categories and criteria, and whether the assessment will be formative or summative, will depend on whether students have practised the concepts at an earlier time or in another context.

Categories and criteria being assessed	Students will	Teacher considerations
Inquire and investigate		
• Collaboratively explore generated ideas, and screen against criteria • Gather information • Explore perspectives relevant to the task at hand to increase awareness • Use a strategy to stay on topic and narrow focus	• Use classroom discussion, group feedback, and independent research to choose issues to resolve with robot assistance/support • Review ideas generated by group members and provide constructive feedback • Research robot types and uses • Interview "intended audience" to gather feedback on challenges that a robot might solve, and synthesize results to help guide design decisions • Conduct guided research	You may wish to design the "I can…" statements with your students. Some examples are: I can… • Gather information and create questions that will guide my plan • Research information in response to a set of guided prompts, using selected resources • Research my task, using multiple sources and taking notes • Record my sources • Interview peers and/or users to gather feedback on robot designs
Identify and Acquire		
• Observe and identify relevant skills, processes, strategies, tools, technologies appropriate for a process or task • Develop and practise skills, processes, strategies, tools, technologies, for task(s) at hand	• Work with designs, templates, and plans to discover which format best supports robot design specifications • Determine and describe how different tasks require different solutions and supports	I can… • Show how I follow the design process to help me in creating my robot design • Determine and explain how robot design will vary based on different functions and needs

Categories and criteria being assessed	Students will	Teacher considerations
Plan and Acquire		
• Outline a plan, to achieve a goal • Gather information and apply to the planning and creation process, and implement the plan	• Collaborate to outline a plan for a robot to solve a challenge in one aspect of daily life • Gather information relevant to the project design	
Apply and Connect		
• Explore the needs of potential user(s) and use findings to help shape a design plan • Solicit and discuss feedback	• Interview intended audience to obtain feedback that will guide robot design toward solving a specific problem • Ask for feedback on their plan, review and determine whether to make plan changes **Extension**: Develop programming skills for working with LEGO Robotics	**Descriptive feedback** Since students are still developing their constructive feedback and interview skills, provide students with descriptive feedback, to help them improve and grow. You may choose to interview each group of students with the goal of providing formative descriptive feedback, both to help them with the project, and to provide feedback on their collaborative working relationships. Do this twice: first, when the group is designing their interview questions, and again when the group is working on their robot design plan. Here are some sample prompts: For the interview: • What questions do you need answered in order to develop your design plan? • How can you ask your questions in a way that is respectful but also gathers the information you need? • What are some of the ways you can conduct your interview(s)?

Categories and criteria being assessed	Students will	Teacher considerations
		For the robot design plan: • What challenge will your group's robot solve? • What are some of the functions you will program your robot to carry out? • What materials will your robot be made out of? Why? • How will your robot sense its surroundings? • How will your robot move and respond to the environment? • Is a robot better equipped to solve this problem than a human? How or why? You could also develop a checklist for peer assessment, if you choose to also focus on peer descriptive feedback As programming/coding may be new to them, these skills should not be summatively assessed.
Analyze and Reflect		
• Observe and discuss the design and planning process • Share ideas and acknowledge feedback from others • Reflect on a plan based on personal observations, including collaborative aspects of the planning and design process	• Combine ideas and obtain feedback, making appropriate adjustments to the plan (for both the robot design and the audience "pitch") • Explore and practise multiple methods of providing constructive feedback, including role-playing, respectful listening, taking turns, and framing and delivering difficult comments using strength-based language • Provide constructive feedback on classmates' pitches and proposals	**Descriptive feedback** You may choose to interview each group of students with the goal of providing formative descriptive feedback, both to help them with the project, and to provide feedback on their collaborative working relationships. Some suggested prompts for the collaborative group work: • How are each of you communicating your thoughts and wishes to the rest of the group? Is the group understanding you and responding in a respectful manner? • How are you solving any challenges in how you work together? • How are you best supporting each other's strengths? This section ties in well with the Core Competencies. Students can practise self-reflection, focusing on Communication and Personal and Social Responsibility, to consider their strengths in these areas and develop goals for the future. Some other possible Core Competency activities are listed below.

Core competencies

When working with students on self-reflection, choose Core Competencies relevant to the activities.

Some examples of activities you wish to incorporate:

1) Students sort kid-friendly summaries of the facets for each of the relevant competencies or sub-competencies into the categories “I Did This,” “Not This Time,” and Doesn’t Apply,” and then ask them to justify their selections.
2) Student reflections could take the form of a journal entry or a Flipgrid video response.
3) Students could also choose artifacts of their learning to address the Core Competencies. After being introduced to kid friendly summaries of the Critical & Reflective Thinking facets (such as Questioning and Investigating), they could use a template with sentence stems to complete their reflections; for example:
    - Doing _____ is a good example of the way I have been developing my Questioning and Investigating skills. It shows my Questioning and Investigating because _____.
    - One thing I would do differently next time is _____.

One of the facets within the Communicating competency and the Collaborating sub-competency, is

> “Working collectively: Students combine their efforts with those of others to effectively accomplish learning and tasks. As members of a group, they appreciate interdependence and cooperation, commit to needed roles and responsibilities, and are conscientious about contributing. They also negotiate respectfully and follow through on plans, strategies, and actions as they share resources, time, and spaces for collaborative projects.”

Examples of summarizing this facet into kid-friendly “I can…” statements are:

- I can work with a group to identify a challenge or problem to be solved. (For example: Give example(s) where you and your group combined ideas to contribute to the planning.)
- I can work respectfully with others to achieve a common goal; I do my share. (For example: Describe how you were respectful towards other group members and how you worked together.)
- I can take on roles and responsibilities in a group. (For example: What was your role in the group? How did you get this role? What was hard or challenging about this role?)
- I can contribute my thoughts and opinions to group discussions. (For example: What was one idea you contributed to group discussions? In what other ways did you contribute to group discussions?)

Sample Application for ADST and Science 7

Empathetic questioning and the design process

Purpose: To develop students' ability to adapt design based on identified needs and use the design thinking process to create a learning resource for younger students in a buddy class.

Scenario: Collaborative design project

Theme: Biodiversity and ecosystems

Core Competencies: The sub-competencies of Communicating and Collaborating are of particular focus in this assignment. As always, it is helpful to explicitly identify these in action, so that students enhance their abilities to identify them, and to subsequently reflect on them.

Inquire and Investigate 1. *Ask questions, generate ideas, and explore perspectives* 2. *Examine specific ideas and tasks to narrow focus*					
K-3	**4-5**	**6-7**	**8-9**	**10**	**11-12**
• Generate ideas to be used collaboratively • Seek out answers to questions and record and share them • Explore perspectives relevant to the task at hand to create awareness • Follow a given strategy to stay on topic	• Collaboratively explore generated ideas, and screen against criteria • Gather information • Explore perspectives relevant to the task at hand to increase awareness • Use a strategy to stay on topic and narrow focus	• Generate ideas relevant to a topic, then screen and evaluate against constraints • Gather information to gain perspective(s) • Explore and recognize perspectives relevant to the task at hand • Use strategies to narrow focus	• Generate focussed and insightful ideas relevant to a topic, then screen and evaluate against constraints • Gather information to explore and gain perspective(s) • Recognize and defend different perspectives relevant to the task at hand • Use strategies to narrow focus and assess ideas relevant to purpose and task	• Consider generated ideas and create focused and insightful questions relevant to topic(s) to inquire and increase understanding, and screen and evaluate against constraints • Gather focused information to enhance perspective(s) • Recognize, defend, and apply different perspectives relevant to the task at hand • Use a variety of focused strategies to assess and evaluate ideas relevant to purpose(s) and task(s)	• Consider generated ideas and create independently generate focused, insightful and nuanced questions relevant to topic(s) to inquire and increase understanding, and screen and evaluate against constraints • Gather in-depth information to enhance multiple perspective(s) • Recognize, defend, and apply different perspectives relevant to the task at hand, revising through iteration(s) • Use a variety of focused strategies to assess, evaluate and modify ideas relevant to purpose(s) and task(s)

Background

This project was created out of opportunity. As a class, students have been developing their ability to ask questions to better understand the user of their product and use the information to improve and guide their design planning. Our district had purchased Bee Bots to help primary classes in learning coding skills, sequential thinking, and robotics. Existing resources for Bee Bots did always engage students or promote higher level thinking. Using the Design Thinking Process, Grade 7 students were given the opportunity to create additional Bee Bot resources for our Grade 3 buddy class that would be engaging and support higher level thinking. Grade 7 students were given time to explore Bee Bots and the existing resources to gain an understanding of how they worked, how they were currently being used, and to initially identify any gaps in how the resources supported learning through Bee Bots.

Task

As a class we looked at the Big Ideas of the Grade 3 Science curriculum. We discussed these with the Grade 3 buddy teacher to see what units they would soon be moving into. With this information we came back as a class to brainstorm a Big Idea that we would like to explore. As a class we decided that the Big Idea “Living things are diverse, can be grouped, and interact in their ecosystems” would be interesting to focus on, as it also tied into learning that had been taking place in the Grade 7 classroom earlier in the year, on survival needs, natural selection, and evolution.

During our class discussions, students identified areas for further research. Grade 7 students were then divided into six groups, where they explored the ecosystem that interested them, narrowing down their research topics to focus on biodiversity within their chosen ecosystem.

Once the research was completed, students then considered how to teach their findings to their Grade 3 buddies. We spent time as a class discussing “empathetic questioning” versus “regular” questioning, to determine how their approach might differ. Groups then developed questions intended to discover the prior knowledge, interests, and learning preferences of their buddies. These questions were brought to our whole-class discussion to provide peer feedback to ensure that the questions would help support their buddies’ learning and inform the design of the Grade 7 students’ Bee Bot instructional materials.

Once students had created a diverse set of questions about ecosystems and learning preferences, they met with their younger buddies to ask them the questions. Based on the results of their interviews, groups looked at their research and decided whether their teaching materials or teaching approach needed further development or refinement.

Students then began developing their Bee Bot materials to teach biodiversity in their chosen ecosystem to their Grade 3 buddies.

Some students created a story to guide the Bee Bot along a path on a large-scale map. They incorporated their research into the story, about such things as plant or animal struggles or challenges in the ecosystem, while including ecosystem-appropriate organisms.

Other students developed materials to help the Grade 3 buddies learn how to program Bee Bots on their journey, using the traits of organisms within the ecosystem as constraints in the Bee Bot programming. For example, a sloth would move slowly, following a treed path, and a jaguar would primarily move at night.

In preparation, students first created a small-scale draft of the map and used their story to test its functionality. They then worked together to create a floor map with 15” x 15” grid squares. Squares included details of the ecosystem’s biodiversity and provided an access point for the Grade 3 buddies to explore ecosystems by following the instructions provided in the stories.

Generalization

This project could be adapted to suit any content, design or technology available within your school. Creating something for a user allows creators to develop their empathetic questioning skills. This could include writing a story for a friend or buddy based on their interests, or a board game that includes content where prior knowledge needed to be questioned. For primary grades, this could include drawing a picture for someone and asking them for some of their favourite colours or images, which could then be included. Empathetic questioning is an important part of the design thinking process and can be developed in these types of projects.

Self-assessment of empathetic questioning

The purpose of the self-assessment is to help Grade 7 students reflect on their empathetic questioning and to provide a road map to further develop these skills.

It is also helpful to explicitly point out the ties between the Core Competencies, such as the sub-competencies of Communicating and Collaborating, and empathetic questioning, as it will help students continue to increase their familiarity and enhance their self-reflection.

Other curricular areas

- Language Arts: Writing – Students write collaborative stories that guide the learner through the map. Students use pre-writing strategies, including graphic organizers and brainstorms. Students use writing conventions and provided peer editing to support with this.
- Social Studies: Students conduct research using inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions.
- Art: Map – Students use a desired medium to create a large-scale map that includes accurate images for the biodiversity in their ecosystem. Students create a working small-scale draft before replicating in the large format.

Name: _____

Self-assessment of empathetic questioning				
	Yes	**Yes, with some support**	**Yes, with guided support**	**Yes, with full support**
Did your questions help you discover what your buddy already knows about ecosystems and biodiversity in general?				
Did your questions help you discover what your buddy already knows about your ecosystem, and the biodiversity within it?				
Were the questions written and asked in a way that your buddy could understand?				
Were you able to discover your buddy's learning preferences?				
Were you able to develop your project with the questions that you asked?				
What additional information did you end up needing in order to create your teaching materials?				
What clarifying questions could you have asked in order to get the information you needed?				
Is there anything you would do differently next time?				

Sample Application for Entrepreneurship and Marketing 8

Assessing strategic thinking, communicating, and content-specific knowledge

Purpose

To assess the knowledge, strategic thinking, and/or communication that students have demonstrated and applied throughout the unit

Scenario

Should we, as a community, choose who to conduct business with, based on our community's perceived ethical standards? How do we know what our community's ethical standards are?

Overview

Students research manufacturing processes and working conditions in various locations throughout the world. They synthesize their results, and within individual groups decide on a marketing strategy to sell T-shirts to the student body. They then present their strategy to an audience, focusing on the results of their research, their decision-making process in choosing a manufacturer and developing their marketing strategy, and their packaging design.

The assignment is divided into individual tasks and tasks for the group. In addition to completing the individual tasks, each student is assigned one group task.

Background

This assignment typically follows once students have explored pricing, production methods, and business ethics. In the Entrepreneurship and Marketing component of Grade 8 ADST, students have learned about many factors that contribute to creating a price point for goods. They have also studied a variety of production processes and methods that are used to create different goods.

Expectations have been developed within the class, and students have learned the typical steps to follow in researching and presenting their ideas. By this point in the course, students will have participated in numerous collaborative tasks. This will be their first time collaborating to present a persuasive marketing strategy.

Process

Students research and compile information on different garment manufacturing industry working conditions around the world. Using this information, they then consider whether their findings should influence choices their community makes when deciding to purchase goods from these manufacturers.

The students are given a hypothetical problem: their school wishes to order an athletic T-shirt that will be sold to students in the school, and each collaborative group is responsible for developing a strategy for sourcing, ordering, and marketing the T-shirts. An initial class survey is taken: which

would students prefer to buy – a T-shirt that costs $40, or one that costs $15? The results of the survey are tabulated and saved for later.

The class has spent time discussing online sources and how to determine credibility. Students are expected to use credible sources for their research, and to provide citations for their sources.

Students gather realistic pricing from numerous locations around the world and, in small groups, discuss their research findings and the ethical issues that they discovered. They are then prompted to investigate both the positive and negative consequences of sourcing textile goods from a number of manufacturers and locations.

Discussions in the small groups are then directed to the topic of cost versus ethics. Then, the whole class discusses how the school community might respond to the school doing business with different manufacturers (and varied working conditions) around the world. Sample questions might be:

- Will students/ parents purchase more expensive t-shirts from manufacturers that offer better working conditions, or will they prefer lower-cost t-shirts, regardless of the working conditions?
- Which is more important for the school – to sell more t-shirts, or to support better working conditions?

Throughout the research phase, the teacher conducts informal, individual conferences with students, to scaffold critical thinking and to facilitate learning as needed.

Once the research and collaborative discussions are completed, students are asked to consider their stance on ethical working conditions and financial benefits. They then choose a manufacturer and design a marketing strategy, including a packaging design, that will attract the largest number of customers while taking community response into consideration.

In their groups, students then produce a prototype of the packaging for the T-shirts and create a presentation for their client (the school) that illustrates their sourcing, pricing, and marketing strategy for selling the T-shirts. Students also share their citations, some of their research, and their decision-making process. The group also chooses a media format that effectively communicates their ideas.

Finally, when all the group presentations have been heard, the teacher facilitates a class discussion in the hope of reaching a consensus. The theme of the project is again explored by asking the students, “Should our school community’s perceived ethical standards influence and shape who we choose to conduct business with?”

A final class survey is taken: which would students prefer to buy – a T-shirt that costs $40 (but is sourced from an ethical manufacturer), or one that costs $15 (where the ethics of the manufacturer are not considered)? The results of the survey are tabulated and compared with the initial survey results.

Individual tasks

This assignment is divided into tasks, which individuals within each group are responsible for. Each student is responsible for completing tasks 1, 2, and 3. These tasks are summatively assessed. The individual tasks are:

1. Research individual manufacturers, obtain realistic pricing, record citations, discover working conditions
2. Investigate and hypothesize positive and negative consequences of sourcing textile goods from each manufacturer researched?
3. Develop an individual stance on ethical working conditions and financial benefits

Group tasks

In each group, students will complete either tasks 4 or 5, collaboratively with a partner. All members of the group will then complete tasks 6 and 7

4. Compile and synthesize results of all group members' research for all manufacturers, pricing, working conditions, and pros/cons for each
5. Compile and synthesize contributions from group members on their individual stance on working conditions and financial benefits
6. Plan and develop the presentation
7. Present to an audience

Students then self-reflect on how they participated in collaborative groupwork, on completing tasks 4–7, and on how the group worked collaboratively as a whole. The groups are formatively assessed on their collaborative behaviour and subsequent deliverables.

Summative assessment of individual tasks

(As students have practiced the skills demonstrated in tasks 1, 2, and 3 multiple times over the duration of the course before this project takes place, the teacher feels comfortable to provide a summative assessment of tasks 1, 2 and 3.)

Note: Since students are working collaboratively in groups, the group products are *not summatively* assessed, as the goal of assessment is to indicate an individual student's progress, while group work is a synthesis of all contributions. Instead, the individually completed portions of the project, which consist of tasks 1, 2, and 3, are summatively assessed, and the group work is formatively assessed through peer and teacher descriptive feedback.

Student name:					
Categories and criteria	**Extending**	**Proficient**	**Developing**	**Emerging**	**Reflections/ Comments**
Inquire and Investigate					
• Gather information to explore and gain perspective(s) • Recognize and defend different perspectives relevant to the task at hand	• Research is extensive, and sources are carefully examined • Numerous perspectives are documented and compared with sophistication and complexity • Pros and cons for each perspective are insightful and detailed	• Gathers research from several different sources, and examines/ compares sources • Can elaborate on more than one perspective, and generate lists of pros and cons for each	• Conducts superficial and general research • Understands one or more perspectives and generates a superficial list of pros and cons	• With guidance, conducts superficial research • Understands simple perspectives • Provides limited pros and/or cons	
Identify and Acquire					
• Acquire, practise, demonstrate and adapt skills, processes, strategies, tools, technologies, required for task(s) at hand	• Sources are credible and reliable • Sources retrieved go beyond those found in a simple online search • Citations are thorough and accurate • Material obtained from research for each manufacturer is detailed and thorough	• Sources are credible and reliable • Citations are thorough and accurate • Material obtained from research for each manufacturer is detailed	• Has consulted multiple sources • Multiple sources are cited • Research materials are available for one or more manufacturers	• Has consulted sources, often with guidance • With guidance, has cited source(s) • Research materials are superficially completed for one or more manufacturers	
Plan and Create					
• Develop a multi-step plan, to achieve a goal • Gather, identify and refine relevant information and apply to the planning and creation process, and implement the plan, adapting and modifying as needed	• Demonstrates • knowledge of, and can elaborate on, the key concepts, to support an opinion or strategy • Uses innovative approach to communicate with the intended audience	• Utilizes information obtained during research to form and support an opinion or strategy • Creates a multi-step, strategic approach to communicate with the intended audience	• Uses information obtained during research to begin to form an opinion or strategy • Develops a strategy for communicating with the intended audience	• With guidance, forms an opinion or strategy • With guidance, shapes a plan to communicate with the intended audience	

Categories and criteria	Extending	Proficient	Developing	Emerging	Reflections/ Comments
Apply and Connect					
• Empathetically explore and understand the needs of users, and communicate insights • Gather and analyze feedback, and refine and use findings to help shape a design plan	• Demonstrates Sophisticated understanding of the key needs of users and can expertly communicate these • Uses sophisticated analysis of findings to expertly shape a design plan	• Demonstrates understanding of the key needs of users and can communicate these • Uses analysis of findings to shape a design plan	• Demonstrates knowledge of the key needs of users and can communicate some of these • Provides limited analysis of findings to help shape a design plan	• Demonstrates some knowledge of the key needs of users and, with guidance, can communicate some of these • With guidance, refers to findings to help shape a design plan	
Analyze and Reflect					
• Assess the design and planning process, and the development of plans and objectives, and the results • Evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design process(es), including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to generate ideas for methodical and practical improvements relevant to intended outcome(s)	• Observations and reflections on the design process are used to iteratively improve both the process and the final product • Actively contributes to the group reflection and offers insightful, constructive peer feedback • Constructively responds to, and incorporates, received feedback	• Uses observations and reflections on the design process to improve both the process and the final product • Contributes to the group reflection and offers constructive peer feedback • Constructively responds to received feedback	• Makes some observations and reflections on the design process • Participates in the group reflection and offers some peer feedback	• With guidance, makes some observations and reflections on the design process • Participates in the group reflection	

Self-reflection on group tasks

Students self-reflect on group tasks and collaborative group work. The teacher then provides descriptive feedback to both the group and individual students. The following form can be used to provide descriptive feedback to either the student, or the group.

Student name:			**Group name:**		
Categories and criteria	**Growing – strong aspects of you (your group's) work**	**Outcomes**	**Growing – how you (your group) can strengthen your work**	**Student**	**Teacher**
Inquire and Investigate					
• Recognize and defend different perspectives relevant to the task at hand	*I documented and compared numerous perspectives with detail and insight Based on my findings, I was able to provide detailed suggestions to my group*	*My detailed insights and perspectives were used the most by the group to decide which manufacturer to go with*	*I thought that our group could have spent more time looking for different manufacturers*	*I really enjoyed this assignment. My group worked well together and came up with many strong arguments for choosing an ethical manufacturer.*	• As a group, your compilation of insights and perspectives were thorough and relevant. • Individually, your research was strong and considered in depth multiple perspectives. • Next time, consider narrowing down your final options.
Inquire and Investigate					
• Acquire, practise, demonstrate and adapt skills, processes, strategies, tools, technologies, required for task(s) at hand					
Plan and Create					
• Develop a multi-step plan, to achieve a goal • Gather, identify and refine relevant information and apply to the planning and creation process, and implement the plan, adapting and modifying as needed					

Categories and criteria	Growing – strong aspects of you (your group's) work	Outcomes	Growing – how you (your group) can strengthen your work	Student	Teacher
Apply and Connect					
• Empathetically explore and understand the needs of users, and communicate insights • Gather and analyze feedback, and refine and use findings to help shape a design plan					
Analyze and Reflect					
• Assess the design and planning process, and the development of plans and objectives, and the results • Evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design process(es), including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to generate ideas for methodical and practical improvements relevant to intended outcome(s)					

Other curricular areas

- Textiles: Research different fabric producers and the production process. Present the findings and demonstrate how these findings can affect daily life.
- Woodwork: Research the production process for lumber and examine the international lumber trade. Prepare a presentation on how to improve the local, provincial, or national lumber trade.
- Digital Literacy: Research the processes for attaining and producing the materials used to make modern technological devices. Develop ideas for establishing a fair-trade market in this industry.
- Automotive: Research the production process at different manufacturing plants around the world. Present your findings and discuss the influence that the production process has on purchasing power.
- Extension: Design a structure, using only materials that are sourced through ethical fair trade. The structure can hold a weight or free stand for a specified period of time. Share the results.

Sample Application for English 9

Formative assessment as part of an interdisciplinary project

Purpose

To support learners further develop self-agency by creating a story (English Language Arts) that illustrates when they have used self-agency, and then choosing the format through which to express and communicate the story (ADST – Media Arts)

Scenario

Grades 9 Language Arts + Media Arts Interdisciplinary project (can be adapted for Grades 8-10)

Theme

Storytelling/Story-making

Note: This assessment tool will utilize categories and criteria from both ADST and English Language Arts. The assignment might be done collaboratively, with two teachers working together across the two subject areas, or by one teacher who offers a cross-curricular ELA/ADST class. The assessment papers could live as a collection in a works-in-progress portfolio/folder (or digital e-portfolio/ document) and be routinely updated/responded/referred to over the course of the project (approximately eight weeks).

Assignment overview

Students write or tell a personal story that illustrates self-agency and then adapt the story to a chosen medium for a specific target audience. This is best taught by scaffolding the assignment, with several discrete steps/assignments to be completed in each class, building to the shared ELA/ADST end-products.

The Core Competencies are discussed by the class, and the assessment framework is shared. Students will be asked to provide artifacts and exemplars of their process. Artifacts of their progress can include but are not limited to research notes, draft planning notes/storyboarding, draft revisions, collaboration/discussion/interviews with peers, ideas workshopped with a peer or teacher, documentation of sparks of inspiration, documentation of reflection and refining process due to that reflection, and so on. Students can submit these artifacts in a variety of formats (e.g., via an e-portfolio, a paper file of their research, files showing various reiterations of their tracked changes in a working document, saved conversations with peers via Google Hangouts, notes taken during workshopping or interviews with peers or teacher, video responses/reflections on decision making via Flipgrid or other tools, written personal reflections, etc.). Teachers then use the descriptive feedback to explain to students where they are at in their learning process, as well as goals to help move them forward. Throughout the duration of the project, students receive feedback multiple times on their progress in the project, focusing on one or two areas of the assessment framework at a time.

Assessment

ADST and ELA categories and criteria

This table contains corresponding ADST and Language Arts categories and criteria for Grade 8-9. Teachers can easily select (copy/paste) pertinent categories and criteria into a formative assessment template, as they may wish to provide descriptive feedback separately for each scaffolded piece of the assignment.

	Inquire and Investigate	**Identify and Acquire**	**Plan and Create**	**Apply and Connect**	**Analyze and Reflect**
ADST	Generate focussed and insightful ideas relevant to a topic, then screen and evaluate against constraints Gather information to explore and gain perspective(s) Recognize and defend different perspectives relevant to the task at hand Use strategies to narrow focus and assess ideas relevant to purpose and task	Assess and justify choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks Acquire, practise, demonstrate and adapt skills, processes, strategies, tools, technologies, required for task(s) at hand	Develop a multi-step plan, to achieve a goal Gather, identify and refine relevant information and apply to the planning and creation process, and implement the plan, adapting and modifying as needed	Empathetically explore and understand the needs of users, and communicate insights Gather and analyze feedback, and refine and use findings to help shape a design plan	Assess the design and planning process, and the development of plans and objectives, and the results Evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings Reflect on design process(es), including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to generate ideas for methodical and practical improvements relevant to intended outcome(s)

	Engaging and questioning	Processing	Constructing and creating	Recognizing identity and voice	Analyzing and interpreting
English Language Arts	Listen and respond Evaluate and synthesize information from multiple sources and for multiple purposes. Make connections and use background knowledge to show understanding Questions, speculate, and problem solve to extend thinking.	Use strategies to access text and expand knowledge. Understand that authors choose a format (linear, circular, and/or interactive) through which to tell their stories.	Plan and refine original text to increase engagement, clarity, and impact Express reactions and opinions and provide evidence to support them Share a story using effective oral communication skills Use elements of text to create meaning Choose specific formats (linear, circular, and iterative) in the creation of story/text	Recognize how language and personal, social, and cultural identity are connected Understand and appreciate multiple contexts, values, and perspectives Adjust format of communication for purpose and audience Exchange ideas and perspectives to extend thinking beyond self and community	Make connections with self, text, and world Use multiple strategies to assess ideas that are relevant to purpose Synthesize ideas and information from a variety of sources to build understanding

More information, including categories and criteria for other curricular areas, can be found at https://curriculum.gov.bc.ca/assessment/classroom-assessment-and-reporting.

Formative assessment tools

Example of completed form

Name: Luke Skywalker **Date:** Week 3 **Class:** Media Arts 9 (ADST) **Assignment:** Choosing a medium and planning the project			
Identify and Acquire	**Student artifacts**	**Teacher-provided descriptive feedback**	**Teacher reflection**
Assess and justify choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks Acquire, practise, demonstrate and adapt skills, processes, strategies, tools, technologies, required for task(s) at hand	Students may choose to provide: • mock-ups of various digital programs tried in order to find the best fit • compared paper versus digital formats • video reflection on tool selection decision making • research notes on the merits and drawbacks of specific programs and tools • written notes/reflections on different platforms/tools and why they chose them • examples of the project being tried/explored in various media (e.g., written, digital, video, photo) to convey the message most effectively	• Luke was thoughtful in considering three different digital authoring programs before selecting the one that best fit his project. Since he demonstrated strong critical thinking skills, he may want to explore how to move beyond traditional writing and tell his story using different media, such as video, audio or photo materials, in order to expand his scope. • Luke thoughtfully assessed one format for his project. He was well able to consider and reflect on the strengths and drawbacks of the selected software/platform. Using the same critical evaluation processes he applied for the one program, he may now wish to critically analyze at least three different platforms before deciding on one.	• *I provided strength-based* feedback • *I* gave the *student a goal to work toward* • *I used the student's* strengths *to help move them further in their learning* • *I focused not on the tools the student chose, but rather on the process* they *went through to choose it*

Plan and Create	**Student artifacts**	**Teacher-provided descriptive feedback**	**Teacher reflection**
• Develop a multi-step plan, to achieve a goal • Gather, identify and refine relevant information and apply to the planning and creation process, and implement the plan, adapting and modifying as needed	Students may choose to provide: • sequential project plan with notes and revisions as plan is adapted • storyboard of ideas with additions and deletions as the project progresses • notes/mind map of brainstorming and planning, including revisions and changes • video log outlining their plan for the project, as well as reflections on the information they have gathered through research, peer collaboration, and teacher feedback • written evidence of a plan, and different decision-making processes that occurred (e.g., notes in the margins, tracked changes) as the project develops	• Luke completed a detailed, well thought out plan in which each step effectively builds on the one before to reach completion of the project. Since Luke excels at thoughtful critical analysis of the processes of a project, as the project unfolds it would be helpful for him to continue to look back on his plan and make revisions to the original plan. • Luke created a storyboard that outlines how his project will unfold. He was also strong at independently looking back at his plan and making changes as needed. Since Luke has strong reflection skills, as the project progresses it would be helpful to connect and communicate with his peers to workshop ideas and refine the results based on received feedback.	• *I* provided *strength-based feedback* • *I* gave *the student a goal to work* toward • *I used the student's* strengths *to help move them further in their learning* • *I focused not on completion of the plan, but rather on whether it* evidenced *decision making, critical thinking, and responsiveness to learned information/feedback*

Blank forms

Name: Luke Skywalker **Date:** Week 2 **Class:** Media Arts 9 (ADST) **Assignment:** Intro to storytelling principles and genre conventions		
Inquire and Investigate	**Student artifacts**	**Teacher-provided descriptive feedback**
Generate focussed and insightful ideas relevant to a topic, then screen and evaluate against constraints Gather information to explore and gain perspective(s) Recognize and defend different perspectives relevant to the task at hand Use strategies to narrow focus and assess ideas relevant to purpose and task		
Identify and Acquire	**Student artifacts**	**Teacher-provided descriptive feedback**
Assess and justify choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks Acquire, practise, demonstrate and adapt skills, processes, strategies, tools, technologies, required for task(s) at hand		

Name: Luke Skywalker **Date:** Week 1 **Class:** English Language Arts 9 **Assignment:** Elements of story		
Engaging and Questioning	**Student artifacts**	**Teacher-provided descriptive feedback**
Listen and respond Evaluate and synthesize information from multiple sources and for multiple purposes. Make connections and use background knowledge to show understanding Questions, speculate, and problem solve to extend thinking.		
Processing	**Student artifacts**	**Teacher-provided descriptive feedback**
Use strategies to access text and expand knowledge. Understand that authors choose a format (linear, circular, and/or interactive) through which to tell their stories.		

Sample Application for Food Studies 9-10

Formative assessment using self-reflection

Purpose

To explore and balance flavour profiles, using the design process

Scenario

Foods lab – Adapting recipes for an intended audience

Theme

Balancing flavour profiles

Background learning

Prior to undertaking this task, students have learned how to balance flavour profiles and to personalize the cooking/creating process of a particular recipe. They will continue to self-reflect on their skills, thinking about the overall process of creating a dish and thoughtfully commenting on the outcome.

Assignment overview

Students follow the design process to explore and balance flavour profiles. Using their tool skills and personal research, students take an existing recipe and apply flavour profiles as part of a plan to create a modified dish that fits their audience. They then reflect on both the food product and their collaboration and critiquing skills.

Description	Teacher reflections

• Students record the preparation method and sequence, list and describe the different tools required, and brainstorm different flavour profiles suitable for their intended audience.
• The teacher may then choose to demonstrate another popular recipe that lends itself to flavour profile changes.
• In a whole-class brainstorm, students discuss traditional dishes and their variations, both conventional and unique.
• Students choose a recipe they would like to create and determine the flavour profile they would like to explore for the recipe (e.g., variations on cordon bleu, quiche, or mac and cheese).
• Students draw or describe what their dish would look like and how it would taste, using their chosen flavour profile.
• Students then survey their classmates and their intended audience (e.g., friends, family) to gather information on flavour combinations, dietary issues, ethical and sustainable food choices, and so on.
• After evaluating and considering the feedback, students finalize their recipe and flavour profile choice
• Students then document the steps to prepare their chosen recipe, taking into consideration adaptations or portion adjustments.
• Students plan their process and identify and describe what tools they will need to complete their recipe.
• As students are working in a shared cooking and preparation space, an aspect of this assignment is to observe and reflect on how they worked collaboratively within their environment, and the quality and nature of their interactions. Are they supportive of one another? How do they handle the messes, cleanup, sharing of supplies, and so on.
• Students then respond to the following prompts:
  ○ "I believe that I showed strengths in the following skills because…"
  ○ "I would like to improve on the following skills…"
  ○ "My plan to improve will be…"
  ○ (Note: Teacher identifies these as aspects of the Core Competencies)
• The teacher then provides written or verbal feedback on the students' self-reflections.
• Once students have prepared their dish, and observed, tasted, and smelled the results, they compare the results with what they had planned. They also solicit feedback and input from their cooking station partners.
	• This assignment typically takes place mid-semester. By this point, students should have a basic understanding of food safety and sanitation principles, measurement, cooking skills and procedures, and flavour profiles. They understand how to look for recipes and do measurement conversions, and they have participated in structured and facilitated design. For this lesson, the teacher focuses on providing formative assessment that students can use as feedback to inform future labs.
	• The teacher demonstrates a conventional recipe (such as stuffed chicken using a chicken cordon bleu filling, accompanied by mashed potatoes), reviewing different recipe adaptations and how certain seasonings and fillings would complement each other. This might involve, for example, adjusting cutting techniques or preparation techniques based on the filling (e.g., grating cheese, julienning onions).
	• Most of the tools will have already been demonstrated and taught during previous lessons, or in the teacher's demonstration. However, depending on the students' chosen recipe, some new tools may be needed. Students are responsible for determining how to acquire these new skills (e.g., just-in-time lesson from the teacher, a peer, or a family member).
	• Students have been practising self-reflection throughout the semester in different contexts. In this assignment, they will be focusing on the Communication and the Personal and Social Core Competencies

ADST categories and criteria used for self-assessment

Category	Grade 9 criteria	Grade 10 criteria
Identify and Acquire	• Assess and justify choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks	• Assess and justify choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks
Plan and Create	• Gather, identify and refine relevant information and apply to the planning and creation process, and implement the plan, adapting and modifying as needed	• Gather, identify and refine relevant information and update and apply through implementation and subsequent iteration(s) of the planning and creation process
Analyze and Reflect	• Assess the design and planning process, and the development of plans and objectives, and the results Reflect on design process(es) and provide personal and peer descriptive feedback, to generate ideas for methodical and practical improvements relevant to intended outcome(s) • Reflect on design process(es), including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)	• Critically assess the design processes and plan objectives, and the outcome(s) generated; justify decisions, and implement changes • Reflect on design processes, including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)

"I can" statements

Students will use these statements to comment and reflect on their achievements as they work on the task.

I can…	Student comments and evidence	Teacher reflections
• determine the best choices for my recipe based on empathetic observation and discussions with my intended audience • select the appropriate tools to complete the recipe • determine and learn the skills needed to complete the procedures called for in the recipe		*Students should be able to explain how they chose the recipe and modification.* *Students will explain and justify which tools, technologies, and/or skills are appropriate for the process/task and how they acquired the skills needed.*
• observe a cooking demonstration, record the necessary information, and apply that knowledge to my recipe • prepare my recipe using safe cooking procedures • collaborate with others • create a plan to complete my recipe in the allotted time frame		*Students should be able to explain how they chose the recipe and modification.* *Students will explain and justify which tools, technologies, and/or skills are appropriate for the process/task and how they acquired the skills needed.*
• self-reflect on my recipe modifications and the successes and challenges experienced • self-reflect on how my dish tasted using flavour profiles and what I can adjust in future • self-reflect on my ability to select and use appropriate tools and skills for the task		*Students should be able to explain how they chose the recipe and modification.* *Students will explain and justify which tools, technologies, and/or skills are appropriate for the process/task and how they acquired the skills needed.*

Other curricular areas

This assignment can be adjusted to fit many Applied Design, Skills, and Technology offerings. For example:

- **Textiles:** Students might choose a pattern and then create a plan, making modifications as needed. They then determine the fabric (considering sustainability, etc.) and the skills that will be needed and come up with a plan to acquire those skills. They might then reflect on their design process and what to change for future projects.
- **Woodwork:** Following the design process, create or modify an existing design to make an item for an intended audience.
- **Automotive:** Using design process steps, determine the best approach to service a vehicle, and follow these steps to completion.
- **Family and Society:** Design an approach for living arrangements and housing options for an intended audience in the community.
- **Entrepreneurship and Marketing:** Create a marketing strategy or business plan for a specific product or service and put it into action.

Sample Application for Grade 11-12 ADST

Incorporating student-teacher conferencing

Background

Students are provided with the ADST categories and criteria framework at the beginning of the course, and are encouraged to collect evidence, artifacts, and samples of their work that best represent how they have met the criteria. Students are well versed in the language used in the framework, as the teacher is intentional in referring to it. The teacher is also intentional in noticing and naming when students are working on a specific category or criteria, to ensure that students are nurtured throughout the process. The goal is for students to be able to meet all of the criteria from each category by the end of the course, and to be able to verbally articulate how they met the criteria. They will also have a collection of documented evidence for their project or activity.

Student progress is discussed during student-teacher conferencing, which takes place several times throughout the course. Students are familiar with student-teacher conferencing, as it is discussed in the class several times throughout each term, and students have engaged in the process previously. During the conferences, students are asked to share samples of their completed projects, plus evidence of their current work-in-progress and the decision-making processes that have taken place during the project.

Students can choose how they wish to gather and share evidence, and they can select a variety of tools appropriate to a given task. For example, they can submit written, video, audio, visual, or other tangible artifacts of their learning. They can also elect to use traditional means (e.g., paper portfolios, scrapbooks, project notes and drawings, paintings, or tangible materials such as wood, metal, prepared food, created garments, etc.) or digital means (e.g., online authoring programs, photo-based products, infographics, e-portfolios, video logs, blogs, podcasts).

Application

The teacher can use this as a formative assessment framework for a term or other defined timeline and as an end-of-semester summative framework, where it can be used to evaluate the skills, techniques, and/or tools that students have practised using throughout the duration of the course. Each term may have a particular focus on a category or criterion or may lend itself better to evaluation of a particular criterion based on the layout of the course itself. The student and teacher work together to complete the assessment and create the goals for the next term.

Example of categories and criteria used for summative assessment

It is expected that no one task or project will involve all categories and criteria. The teacher may choose to focus on just one or two categories or criteria to discuss at each student-teacher conference. Alternatively, the whole chart may serve as an end-of-course tool to review all of the learning standards and expectations for the course.

Category and criteria being assessed	Emerging *The student demonstrates an initial understanding of the concepts and competencies relevant to the expected learning*	Developing *The student demonstrates partial understanding of the concepts and competencies relevant to the expected learning*	Proficient *The student demonstrates complete understanding of the concepts and competencies relevant to the expected learning*	Extending *The student demonstrates a sophisticated understanding of the concepts and competencies relevant to the expected learning*	Student self-evaluation *Give evidence of how your work satisfies aspects of the outlined criteria and discuss areas that you would like to focus on for future growth.*	Teacher descriptive feedback *Provide descriptive feedback of the student's work, in relation to the outlined criteria, and outline areas for future growth.*
Inquire and investigate • Consider generated ideas and create independently generate focused, insightful and nuanced questions relevant to topic(s) to inquire and increase understanding, and screen and evaluate against constraints • Gather in-depth information to enhance multiple perspective(s) • Recognize, defend, and apply different perspectives relevant to the task at hand, revising through iteration(s) • Use a variety of focused strategies to assess, evaluate and modify ideas relevant to purpose(s) and task(s)	**Students will…** • generate simple questions with support • complete research gathering with guidance • engage with and recognize different perspectives • use familiar strategies for evaluating ideas • incorporate changes to plan, with guidance	**Students will…** • generate specific questions • conduct general research • engage with, recognize, and apply different perspectives in context • use strategies for evaluating ideas • incorporate changes to the plan based on increased understandings	**Students will…** • independently generate focused, insightful and nuanced questions relevant to topic(s) to inquire and increase understanding • conduct in-depth research using a variety of sources and methods • recognize, defend, and apply different perspectives • revise the plan based on initial findings, and again through iteration(s)	**Students will…** • generate novel, specific, and complex questions independently • conduct robust, in-depth research using a variety of unique sources and methods • engage with, recognize, apply, and defend multiple perspectives with finesse and nuance • use targeted strategies and methods to evaluate and refine ideas relevant to purpose, both initially and through iteration(s)	**Student self-evaluation**	**Teacher descriptive feedback**

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	Student self-evaluation	Teacher descriptive feedback
Identify and Acquire • Assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • Investigate, acquire, practise, and demonstrate skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate	**Students will…** • select tools, technologies, and/or skills appropriate for the process or task • provide rationale for their choices, with guidance • acquire strategies and/or skills required to complete a variety of tasks	**Students will…** • select and use tools, technologies, and/or skills appropriate for the process or task • provide rationale for their choices • acquire and apply strategies and/or skills required to complete a variety of tasks	**Students will…** • assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • investigate, acquire, practise, and demonstrate skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate	**Students will…** • research, assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • assessing strengths and weaknesses of mediums, and responding correspondingly • independently and creatively investigate, acquire, apply, and refine skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate to complete a variety of tasks	**Student self-evaluation**	**Teacher descriptive feedback**

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	Student self-evaluation	Teacher descriptive feedback
Plan and Create • Develop and implement a sophisticated plan, to achieve a goal, adapting as needed • Gather, identify and refine relevant information and update and apply creatively through implementation and subsequent iteration(s) of the planning and creation process	**Students will…** • develop a plan in order to work toward a goal • gather information to inform the planning and creation process • document iterations of the process	**Students will…** • develop and implement a plan, which includes a targeted series of actions, to work toward a goal • collect information to inform iterations within the planning and creation process • document and reflect on iterations of the process	**Students will…** • develop and implement a plan, which includes a targeted series of actions, to work toward a goal, adapting as needed • consider and apply information collected to further develop iterations within the planning and creation process • document and reflect with detail on iterations of the process	**Students will…** • develop and implement a plan, which includes a targeted series of actions, to work toward a goal, repeatedly adapting and changing course as needed • gather, consider, and use information collected to further develop iterations within the planning and creation process, including feedback from and/or workshopping ideas with others • document and reflect with detail on iterations of the process, making changes in response to their reflections	**Student self-evaluation**	**Teacher descriptive feedback**

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	Student self-evaluation	Teacher descriptive feedback
Apply and Connect • Empathetically explore and understand the needs of potential users through multiple iterations, communicating insights as relevant • Engage with users to identify impacts. • Evaluate and synthesize feedback and refine and use findings to revise and inform further iterations	**Students will…** • demonstrate specific skills, knowledge, tools, and/or technologies for a context • communicate insights from potential user(s) • gather user feedback	**Students will…** • demonstrate specific emerging skills, knowledge, tools, and/or technologies for a context • communicate insights from potential user(s) and effectively engage the audience in identifying impacts • evaluate user feedback	**Students will…** • empathetically explore and understand the needs of potential users through multiple iterations, communicating insights as relevant • engage with users to identify impacts. • evaluate and synthesize feedback and refine and use findings to revise and inform further iterations	**Students will…** • empathetically explore and understand the needs of potential users through multiple iterations, communicating and creatively incorporating insights as relevant • engage with users to identify and mitigate impacts. • evaluate and synthesize feedback and refine and use findings to revise and inform further iterations • highlight where feedback differs from their own perspective or the perspective of others to determine how to utilize the differing opinions	**Student self-evaluation**	**Teacher descriptive feedback**

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	Student self-evaluation	Teacher descriptive feedback
Analyze and Reflect • Critically assess the design processes and plan objectives through each iteration, and the outcome(s) generated; justify decisions, and implement changes • Collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design processes, including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)	**Students will…** • with guidance, reflect on changes in response to the enacted processes and objectives • incorporate ideas and feedback from appropriate audience(s), and act on findings • reflect on design processes and provide descriptive feedback	**Students will…** • reflect on and implement changes in response to the enacted processes and objectives • collaboratively incorporate ideas and feedback from, and with, appropriate audience(s), and act on findings • reflect on design processes and provide descriptive feedback, to apply ideas for improvements relevant to intended outcome(s)	**Students will…** • critically reflect on the outcome(s) generated by design processes and plan objectives through each iteration; justify decisions, and implement changes • collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • reflect on design processes and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)	**Students will…** • critically reflect on the outcome(s) generated by design processes • justify decisions and implement changes in response to the enacted processes and objectives • note how the changes differ from the initial plan, and analyze the rationale for the change • collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and apply novel techniques, often beyond the scope of the class, derived from ideas for methodical and practical improvements, while comparing with intended outcome(s) • reflect on design processes and provide personal and peer descriptive feedback, to apply innovative and model ideas for methodical and practical improvements relevant to intended outcome(s)share, engage, innovate, and implement ideas and feedback with and from appropriate audience(s), extending the ideas to other areas of the project	**Student self-evaluation**	**Teacher descriptive feedback**

Completed summative assessment rubric example

Students highlight where they feel they would fall on the rubric (here shown in italics), and reflect on their process, justifying why they feel they fall within the category they have chosen. The teacher is then able to highlight in another colour (here shown in as underlining) where students are at in their learning, and provide feedback on why, and how they can move forward.

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	Student self-evaluation (Note: Student's self-assessment is indicated with *italics* and **bold**)	Teacher descriptive feedback *(Note: Teacher's assessment is underlined)*
Inquire and investigate • Consider generated ideas and create independently generate focused, insightful and nuanced questions relevant to topic(s) to inquire and increase understanding, and screen and evaluate against constraints • Gather in-depth information to enhance multiple perspective(s) • Recognize, defend, and apply different perspectives relevant to the task at hand, revising through iteration(s) • Use a variety of focused strategies to assess, evaluate and modify ideas relevant to purpose(s) and task(s)	**Students will…** • generate simple questions with support • complete research gathering with guidance • engage with and recognize different perspectives • use familiar strategies for evaluating ideas • incorporate changes to plan, with guidance	**Students will…** • ***generate specific questions*** • ***conduct general research*** • ***engage with, recognize, and apply different perspectives in context*** • ***use strategies for evaluating ideas*** • ***incorporate changes to the plan based on increased understandings***	**Students will…** • independently generate focused, insightful and nuanced questions relevant to topic(s) to inquire and increase understanding • conduct in-depth research using a variety of sources and methods • recognize, defend, and apply different perspectives • revise the plan based on initial findings, and again through iteration(s)	**Students will…** • generate novel, specific, and complex questions independently • conduct robust, in-depth research using a variety of unique sources and methods • engage with, recognize, apply, and defend multiple perspectives with finesse and nuance • use targeted strategies and methods to evaluate and refine ideas relevant to purpose, both initially and through iteration(s)	**Student self-evaluation** ***Developing:*** *During my initial planning, I interviewed my users/clients and evaluated their responses to gather my information.* *I used what I discovered to create specific questions that guided my research and helped me develop my plan.* *Next time I would increase the complexity of my questions and include multiple perspectives and use these to narrow my focus more and help me increase the depth of my research.*	**Teacher descriptive feedback** **Proficient:** Well done gathering feedback from multiple sources and considering their merit before using them. It is also a very critical step to return to researching again to inform and narrow down your approach. I think your goal of next time soliciting feedback from multiple perspectives at the beginning of your process is a good one. While your research was extensive, much of the work might have been eliminated if you had obtained this information in the first place. Your research was detailed and in-depth, even without the multiple perspectives from users. It is a definite strength of yours! I loved how you conferenced with me, collaborated with your peers, e-mailed people in the community, and went around to other classes with survey questions. I would love to see evidence of how you considered other people's perspectives when deciding on the direction of your project.

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	**Student self-evaluation** (Note: Student's self-assessment is indicated with *italics* and **bold**)	**Teacher descriptive feedback** *(Note: Teacher's assessment is underlined)*
Identify and Acquire • Assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • Investigate, acquire, practise, and demonstrate skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate	**Students will…** • select tools, technologies, and/or skills appropriate for the process or task • provide rationale for their choices, with guidance • acquire strategies and/or skills required to complete a variety of tasks	**Students will…** • select and use tools, technologies, and/or skills appropriate for the process or task • provide rationale for their choices • acquire and apply strategies and/or skills required to complete a variety of tasks	**Students will…** • ***assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks*** • ***investigate, acquire, practise, and demonstrate skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate***	**Students will…** • research, assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • assessing strengths and weaknesses of mediums, and responding correspondingly • independently and creatively investigate, acquire, apply, and refine skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate to complete a variety of tasks	**Student self-evaluation** ***Proficient:*** *I was easily able to pick the tools I needed for my project.* *I did not need to learn or refine any additional skills as the tasks for my project were straightforward, and I had used them before and was already good at it.* *I didn't need to consider anything else.*	**Teacher descriptive feedback** **Developing:** You did do a great job working with the tools you selected. The tools you selected also worked for your project. Moving forward, you might want to try to challenge yourself. There are a variety of more complex tools that will do the same task but might result in a more refined product, or in an earlier completion. Next time you might want to start by researching other ways to complete your task.

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	**Student self-evaluation** (Note: Student's self-assessment is indicated with *italics* and **bold**)	**Teacher descriptive feedback** *(Note: Teacher's assessment is underlined)*
Plan and Create • Develop and implement a sophisticated plan, to achieve a goal, adapting as needed • Gather, identify and refine relevant information and update and apply creatively through implementation and subsequent iteration(s) of the planning and creation process	**Students will…** • develop a plan in order to work toward a goal • gather information to inform the planning and creation process • document iterations of the process	**Students will…** • develop and implement a plan, which includes a targeted series of actions, to work toward a goal • collect information to inform iterations within the planning and creation process • document and reflect on iterations of the process	**Students will…** • ***develop and implement a plan, which includes a targeted series of actions, to work toward a goal, adapting as needed*** • ***consider and apply information collected to further develop iterations within the planning and creation process*** • ***document and reflect with detail on iterations of the process***	**Students will…** • develop and implement a plan, which includes a targeted series of actions, to work toward a goal, repeatedly adapting and changing course as needed • gather, consider, and use information collected to further develop iterations within the planning and creation process, including feedback from and/or workshopping ideas with others • document and reflect with detail on iterations of the process, making changes in response to their reflections	***Proficient:*** *I created a detailed plan for my project. I also gathered feedback from my peers during my creation process and used that information to change my plan.* *Later in my project I reflected on the planning process and realized I still had changes to make, so I went back and made more edits to my original plan that will help me as I finish the project, as well as in my next project.*	**Extending:** You did a wonderful job in your plan, taking your end goal and breaking it into small, achievable steps. Your ability to reflect and then go back and make changes in order to prepare you better for our next assignment is one of your strengths. With your permission I would like to draw from some of your examples to highlight for the class ways that reflection can be used to improve a product. I also noticed in your submitted artifacts that you had a Google Hangout Chat with a peer who was engaged in a similar project and that you used that feedback to change your original plans. These are good examples of how you are using your Social and Personal, Communication, and Thinking competencies.

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	Student self-evaluation (Note: Student's self-assessment is indicated with *italics* and **bold**)	Teacher descriptive feedback *(Note: Teacher's assessment is <u>underlined</u>)*
Apply and Connect • Empathetically explore and understand the needs of potential users through multiple iterations, communicating insights as relevant • Engage with users to identify impacts. • Evaluate and synthesize feedback and refine and use findings to revise and inform further iterations	**Students will…** • demonstrate specific skills, knowledge, tools, and/or technologies for a context • communicate insights from potential user(s) • gather user feedback	**Students will…** • ***demonstrate specific emerging skills, knowledge, tools, and/or technologies for a context*** • ***communicate insights from potential user(s) and effectively engage the audience in identifying impacts*** • ***evaluate user feedback***	**Students will…** • empathetically explore and understand the needs of potential users through multiple iterations, communicating insights as relevant • engage with users to identify impacts. • evaluate and synthesize feedback and refine and use findings to revise and inform further iterations	**Students will…** • empathetically explore and understand the needs of potential users through multiple iterations, communicating and creatively incorporating insights as relevant • engage with users to identify and mitigate impacts. • evaluate and synthesize feedback and refine and use findings to revise and inform further iterations • highlight where feedback differs from their own perspective or the perspective of others to determine how to utilize the differing opinions	**Student self-evaluation** ***Developing:*** *I was able to choose and use the new tools and skills needed for this project and show and defend why I chose them instead of the easier ones that we learned a couple of years ago.* *I struggle with getting my feedback from multiple sources and using it. This is the area I would like to get better at. I know where to go to get the information I need from my intended audience at the start of my project, and I can create my initial questions to guide my research, but I don't always know what questions to ask later in the development process to get me the information I need.* *When evaluating my final product and deciding whether to change my plan for the future, I also don't always know how to take all the different perspectives I get and decide which ones to use to modify my plan and which ones to ignore.*	**Teacher descriptive feedback** **Proficient:** Great insight! You do a great job of identifying who your audience is when gathering your initial information. To help you later in the project, you could create a list of questions and run them by a peer for feedback to see whether you are considering all angles of your plan and project development. This will tap into the strong Communication and Social and Personal competencies you have already shown during other aspects of this project. As for evaluating different perspectives when considering your final product, this is where your strong Thinking competency can be useful. You as the creator have the ultimate say on the direction of your project. So you can consider your goals and see whether the information you get aligns with your vision and adds value that you might not have considered before. If the feedback doesn't add value, then you don't have to include it.

Category and criteria being assessed	Emerging	Developing	Proficient	Extending	**Student self-evaluation** (Note: Student's self-assessment is indicated with *italics* and **bold**)	**Teacher descriptive feedback** *(Note: Teacher's assessment is underlined)*
Analyze and Reflect • Critically assess the design processes and plan objectives through each iteration, and the outcome(s) generated; justify decisions, and implement changes • Collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design processes, including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)	**Students will…** • with guidance, reflect on changes in response to the enacted processes and objectives • incorporate ideas and feedback from appropriate audience(s), and act on findings • reflect on design processes and provide descriptive feedback	**Students will…** • reflect on and implement changes in response to the enacted processes and objectives • collaboratively incorporate ideas and feedback from, and with, appropriate audience(s), and act on findings • reflect on design processes and provide descriptive feedback, to apply ideas for improvements relevant to intended outcome(s)	**Students will…** • ***critically reflect on the outcome(s) generated by design processes and plan objectives through each iteration; justify decisions, and implement changes*** • ***collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings*** • ***reflect on design processes and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)***	**Students will…** • critically reflect on the outcome(s) generated by design processes • justify decisions and implement changes in response to the enacted processes and objectives • note how the changes differ from the initial plan, and analyze the rationale for the change • collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and apply novel techniques, often beyond the scope of the class, derived from ideas for methodical and practical improvements, while comparing with intended outcome(s) • reflect on design processes and provide personal and peer descriptive feedback, to apply innovative and model ideas for methodical and practical improvements relevant to intended outcome(s)share, engage, innovate, and implement ideas and feedback with and from appropriate audience(s), extending the ideas to other areas of the project	**Student self-evaluation** ***Proficient:*** *Throughout my process I reflected on my designs and the products I created.* *I evaluated and then justified my decisions based on potential impacts of the changes, before I made changes to my original plan.* *I also asked a friend for their ideas since they were working on a similar project. I also did some self-reflection on my working methods and my collaboration, but most of my reflection was on the project itself.*	**Teacher descriptive feedback** **Proficient:** You did a good job of using your communication skills to collaborate with your peers. I also see evidence that you were able to think critically about the feedback you received, which resulted in you changing your plan. I like that you evaluated the feedback you receive before changing your plan. Please remember for the future that not all feedback must be acted upon. Instead, consider using the feedback to look at your project through new eyes and see if changes are really needed. If they are, consider whether the changes are those that have been suggested, or are something entirely different. I also like how you were able to reflect on what you did well, as well as come up with some goals to help you grow your abilities during the next project. I agree with you that next time you might want to reflect on your own work and collaboration methods and strategies, as they will also help move your project forward and make work in the group go more smoothly.

Sample Application for Textile Studies 11-12

Multi-grade design (garment construction) project

Purpose: Formative assessment of the design process that students will be following, and compare their growth between an introductory project and the design project, through self-reflection and teacher descriptive feedback

Scenario: Textile Studies 11-12 multi-grade design (garment construction) project (may also be adapted for Grade 10 students

Theme: Following the design process to construct a garment

Core Competencies: Core Competencies are embedded within the Curricular Competencies and are explicitly recognized and addressed throughout the project

Building background knowledge

Earlier in the course, students will have completed an introductory project that builds background knowledge and skills. They will have learned new skills or reviewed previous learning appropriate to the task (e.g., fabric properties, pattern drafting, pattern layout, sewing notions, safety, reading and comprehending pattern instructions, modifying patterns, sewing machine operation, basic sewing techniques, constructing a basic seam, seam allowances, seam finishes, grading, trimming corners, edge-stitching, top-stitching, inserting a zipper(s), inserting a lining, and pressing). The Core Competencies used during the introductory project will have been highlighted and discussed.

On completion of the introductory project, students will have self-assessed their skills and their ability based on the rubric below. The self-assessment will have helped to affirm the students' proficiency and highlight curricular competencies, skills, technology, and tool applications (baseline skills) that need further development or refinement before starting their design project. This self-assessment will be revisited later in the design project.

Before beginning the design project, the class researches and shares findings on:

- strategies for modifying patterns
- techniques for repurposing textile items
- economical and ethical factors and considerations in the textiles they choose
- design for the life cycle
- First Peoples historical and current textile knowledge and practices
- Interpersonal and consultation skills, including ways to interact with clients

Assignment description

Students follow the design process to choose and adapt textile patterns for creating a piece of clothing. Grade 11 and 12 students make their own choices, based on interviews with others in the class and any constraints determined by the teacher (e.g., material costs, time constraints, tools available). Grade 10 students may choose from an array of patterns offered by the teacher. Difficulty level and the extent of pattern modification can be adjusted based on student and teacher preference.

Once the initial background learning is completed, students prepare to conduct interviews, consultation, and empathetic observation, in order to determine what item might be best for them to create. Students prepare questions about themselves (or the person they wish to create a garment for) and use these questions to interview others in the class. They then use the responses to their questions to help them decide what garments might be on their shortlist, taking into consideration the required textiles, approach, techniques, design modifications, design for the life cycle, textile repurposing, and so on.

Next, students conduct research to determine any design opportunities for or barriers to creating each garment on the shortlist and use their research, along with the interview results, to narrow their choices. They combine the information they have gathered with social, ethical, economic, and sustainability considerations before choosing the pattern they will use. As a class, they also discuss issues around the textile industry, such as “throwaway clothing,” unfair labour practices, and the fur industry, to help narrow their choices.

As most of the garment construction will be completed with the serger, the teacher first offers mini-lessons on operating and rethreading a serger. Students complete samples with the fabric they have selected for their design project, which helps them become familiar and comfortable with manipulating the fabric. Once they can demonstrate their ability to operate and rethread the serger and handle their selected fabric, they can proceed with garment construction.

Mini-demonstrations of other techniques can be provided by the teacher on an as-needed basis, to support students as they choose their patterns, modify their designs, and engage in specific technique applications. When students learn a new construction technique that applies to their project, they demonstrate it, using sample(s). Students are also required to work collaboratively, gather and apply feedback, and assist others by sharing their knowledge through peer teaching.

Students are reminded that they will be self-assessing their progress through the design process and are encouraged to take the initiative to refine their skills and make necessary revision(s) to their process and/or garment. Students periodically check in with the teacher to show that they are able to comprehend the pattern instructions and demonstrate the skills, technologies, and tools they need. They also check in after completing each component of their project, before proceeding to the next step. This gives the teacher multiple opportunities to provide constructive feedback, which will help students adjust their progress and thinking as part of the ongoing design process.

If at any point during the construction process students wish to modify their design plans because of application difficulties or dissatisfaction with the design itself, they have the option to do so after consulting with the teacher.

On completing the design project, students complete their self-assessment, which asks them to indicate how they followed the design process and to identify areas of growth in the design process, their skill development, and the application of technologies and tools for future projects. Students compare their self-reflection from the design project with that from their earlier introductory project to determine what has improved or changed and to provide feedback to consider for future projects.

Assessment

The self-assessment and teacher assessment has been developed for the Grade 11-12 categories and criteria. Assessment can be modified to accommodate the Grade 10 criteria.

Rubric points for the introductory project and the design project can be highlighted on the same page but in different colours, so that the growth between projects is visually clear.

Note: While all of the ADST categories and criteria are listed in the table, not all are being evaluated in this assignment. Those being evaluated are marked in red in the left-hand column.

Please check: ☐ Self-assessment ☐ Teacher assessment

Grade 11-12 Categories and criteria	Emerging	Developing	Proficient	Extending	Self-reflection or Teacher descriptive feedback
Inquire and Investigate • Consider generated ideas and create independently generate focused, insightful and nuanced questions relevant to topic(s) to inquire and increase understanding, and screen and evaluate against constraints • Gather in-depth information to enhance multiple perspective(s) • Recognize, defend, and apply different perspectives relevant to the task at hand, revising through iteration(s) • Use a variety of focused strategies to assess, evaluate and modify ideas relevant to purpose(s) and task(s)	• Create questions to guide user-centred research • Conduct research • Recognize different perspectives • Use strategies during the project	• Create specific questions to guide user-centred research • Conduct research that informs the project • Recognize and apply different perspectives • Use a variety of strategies during the project	• Independently create specific, empathetic questions to guide user-centred research • Conduct in-depth research that informs the project • Recognize, defend, apply, and engage with different perspectives • Use a variety of strategies to evaluate ideas, determining which will be used, and use them during the project	• Independently create specific, empathetic questions to guide and refine user-centred research • Conduct in-depth, specific research that informs and guides the project • Recognize, defend, apply, engage with, and incorporate different perspectives • Use a variety of strategies to evaluate ideas, then refine and incorporate these during the project	Introductory Project Design Project

Grade 11-12 Categories and criteria	Emerging	Developing	Proficient	Extending	Self-reflection or Teacher descriptive feedback
Identify and Acquire • Assess and provide detailed rationales for the choices of relevant skills, processes, strategies, tools, technologies, appropriate for tasks • Investigate, acquire, practise, and demonstrate skills, processes, strategies, tools, technologies, for a variety of given contexts, refining as appropriate	• Use skills, technologies, and tools appropriate to the construction method • Apply skills, techniques, and tools relevant to the project • Apply design process strategies for the task at hand	• Select and use technologies and tools appropriate to the construction method • Acquire and apply skills, techniques, and tools relevant to the project • Acquire and apply design process strategies for the task at hand	• Assess, select, and use skills, technologies, and tools appropriate to the construction method • Identify, acquire, and apply skills, techniques, and tools relevant to the project • Acquire, apply, and refine design process strategies for the task at hand	• Define, select, and use skills, technologies, and tools relevant to the construction method and explain decisions based on underlying principle(s) • Identify, acquire, apply, and refine skills, techniques, and tools relevant to the project • Analyze, acquire, apply, and refine design process strategies for the task at hand	Introductory Project Design Project

Grade 11-12 Categories and criteria	Emerging	Developing	Proficient	Extending	Self-reflection or Teacher descriptive feedback
Plan and Create • Develop and implement a sophisticated plan, to achieve a goal, adapting as needed • Gather, identify and refine relevant information and update and apply creatively through implementation and subsequent iteration(s) of the planning and creation process	• Follow instructions in a pattern to create a textile piece • Use information gathered from questioning to choose a project • Complete self-reflection and compare results with self-reflection from introductory project • Document suggested changes for future products	• Assess and follow instructions in a pattern to create a textile piece • Assess and use information gathered from questioning to choose a project • Complete self-reflection, comparing results with self-reflection from introductory project, and decide on further actions • Document and describe suggested changes for future products	• Assess, follow, and adapt instructions in a pattern to create a textile piece, to work toward a goal • Assess and use information gathered from questioning to inform and justify choice of a project • Complete self-reflection, comparing results with self-reflection from introductory project, and outline in detail further actions • Document, describe, and reflect on suggested changes for future products	• Assess and adapt a pattern(s) to create a textile piece, to work toward a goal • Assess, evaluate, and use information gathered from questioning to inform and justify choice of a project • Complete self-reflection, comparing results with self-reflection from introductory project, and outline in detail further actions • Document, describe, reflect on, and plan suggested changes for future products	Introductory Project Design Project

Grade 11-12 Categories and criteria	Emerging	Developing	Proficient	Extending	Self-reflection or Teacher descriptive feedback
Apply and Connect • Empathetically explore and understand the needs of potential users through multiple iterations, communicating insights as relevant • Engage with users to identify impacts. • Evaluate and synthesize feedback and refine and use findings to revise and inform further iterations	• Demonstrate specific skills, knowledge, tools, and technologies appropriate for the project • Use teacher and self-reflection feedback to modify the project	• Determine appropriate skills, knowledge, tools, and technologies appropriate for the project, and demonstrate them • Assess teacher and self-reflective feedback and apply to the project	• Demonstrate the specific and emerging skills, knowledge, tools, and technologies appropriate for the project, and connect with project improvements • Evaluate and use teacher and self-reflective feedback to improve current and future iterations of the project	• Research and recommend specific and emerging skills, knowledge, tools, and technologies appropriate for the project, and connect with project improvements • Evaluate, assess, and incorporate teacher and self-reflective feedback to improve current and future iterations of the project and other design trajectories	Introductory Project Design Project

Grade 11-12 Categories and criteria	Emerging	Developing	Proficient	Extending	Self-reflection or Teacher descriptive feedback
Analyze and Reflect • Critically assess the design processes and plan objectives through each iteration, and the outcome(s) generated; justify decisions, and implement changes • Collaboratively evaluate ideas and feedback from, and with, appropriate audience(s), and act on findings • Reflect on design processes, including collaborative aspects of the planning and design process, and provide personal and peer descriptive feedback, to apply ideas for methodical and practical improvements relevant to intended outcome(s)	• Implement changes to current project and outline considerations for further iterations based on findings from research on textile practices • Apply techniques based on teacher descriptive feedback	• Justify and implement changes to current project and outline considerations for further iterations based on findings from research on textile practices • Apply techniques from ideas generated by teacher descriptive feedback	• Critically reflect, justify, and implement changes to current project and outline considerations for further iterations based on findings from research on textile practices • Apply techniques and make improvements based on teacher descriptive feedback	• Critically reflect, justify, and implement changes to current project and outline considerations for further iterations and projects based on findings from research on textile practices • Apply and improve on techniques and make project improvements based on self-reflection and teacher descriptive feedback	Introductory Project Design Project