

STEMterprise Grade 5: Assessment Planning



STEMterprise has extensive opportunities for assessment *for, as, and of* learning.

Ontario's [Growing Success](#) document notes that assessment "should be triangulated to include observation, student-teacher conversations, and student products." As teachers go through the various STEMterprise stages, there are ongoing opportunities to gather information about student learning with evidence from observations, conversations, and products as students engage in the hands-on, and collaborative activities on their learning journey toward creating their own pizza business.

The following suggestions and samples are provided in this document. Teachers are encouraged to modify resources as they feel works best for their students.

- **Single Point Rubric** - Each STEMterprise lesson slidedeck begins with Learning Goals. These goals can be used as the expectations for a one-point rubric. Alternately, teachers can co-create expectations or a single-point rubric relating to the learning goals. The second tab in the document has rubric samples relating to a STEM challenge and sample goals organized by the achievement chart categories.
- **Reflections** - The opportunity to think about aspects of the work allows students to better understand themselves as learners and reflect on what they did well.
- **Portfolio** - Teachers might choose to organize the business groups and student work using coloured folders. These folders could be the base for a portfolio of their work that teachers could assess and provide feedback
- **Exit Tickets** - Having quick questions at the end of a lesson can be an effective way to see where students are in their understanding of the content. A general example for this project is found on the fourth tab of this document.
- **Learning Skills Reflection** - STEMterprise's design allows for ongoing opportunities for students to develop their Learning Skills. Teachers might choose to focus on one or two, such as collaboration and communication throughout the project. The sample on the fifth tab of this document has a sample for each learning skill.
- **Two Stars and a Wish** - Student feedback is a useful tool and particularly relevant in Stage 5 as students are preparing for and doing their Showcase. A sample can be found on the sixth tab.
- **3, 2, 1** - Active listening and engagement in lessons can be emphasized when students use a 3, 2, 1 organizer. This sample on the last tab can be used effectively for independent tasks.

Sample Report Card Comments

The cross-curricular nature and the broad scope of the STEMterprise project affords teachers a wealth of assessment opportunities; this resource is intended to support your assessment practices. These sample report card comments, when paired with your own classroom observations, student conversations and product evaluations, can support you crafting personalized comments that communicate student learning strengths, growth, and next steps.

Since these sample comments are a starting point and do not cover every strand or component of the STEMterprise project; teachers are encouraged to integrate additional report card samples and recommendations that align with your specific board's guidelines. Since STEMterprise activities cover many subjects, you might also find opportunities to assess and write comments for subjects like Art or Health that you explored more deeply with your class.

Following the guidelines of Ontario's *Growing Success* policy, report card comments should describe significant strengths, identify next steps for improvement, and illustrate growth in learning. While a student's tangible achievements within the STEMterprise project can inform their final grade, their comments should tell the deeper, personalized story of their learning journey.

Grade 5 Sample STEM Comments

Level 4: *Name* demonstrated outstanding innovation and critical thinking by seamlessly connecting science and mathematics concepts throughout the STEMterprise project. S/He expertly applied an engineering design process to build and test a functional cardboard pizza box prototype (or other STEM activity as recommended in the combined grades resource). In mathematics, *Name* showcased exceptional coding skills using conditional statements by (insert coding activity here). S/He independently gathered market research and used data literacy skills to evaluate trends, creating highly clear relative-frequency tables to justify his/her group's choices. To further extend his/her learning, *Name* is encouraged to explore the field of agricultural innovation, looking at how grain crops are being used creatively beyond food production, such as creating biodegradable packaging to practise meaningful stewardship of the environment.

Level 3: *Name* effectively demonstrated the integration of STEM skills across both science and mathematics during our STEMterprise project. S/He successfully wrote and executed a block-coding program using loop structures to (insert coding activity here). *Name* accurately calculated unit rates for bulk ingredients to build a functional business budget. To support his/her continued growth, *Name* is encouraged to focus on the revision stage of the design process, using peer feedback to test and refine prototypes more independently.

Level 2: With teacher support, *Name* is developing his/her STEM skills by participating in the collaborative coding and design phases of the STEMterprise pizza project. With guidance, s/he utilized a design process to construct a pizza box prototype. In mathematics, s/he is learning to use basic coding concepts to solve real-world problems, showing progress in altering predefined code templates. *Name* was able to organize survey responses regarding customer pizza preferences into a basic table. *Name* will continue to be supported with structured checklists and graphic organizers to help him/her independently plan, test, and record data when working through complex scientific and mathematical procedures.

Grade 5 Sample Science Comments

Level 4: *Name* demonstrated outstanding critical thinking and scientific inquiry throughout the STEMterprise pizza project. *S/He* clearly understood how the nutritional components of grain crusts and toppings interact directly with the human digestive system, explaining in detail how nutrients are absorbed and then transported via the circulatory system to support vital organs. *Name* expertly connected their learning about how a diet high in processed fats affects long-term cardiovascular health to *his/her* product. Additionally, *s/he* applied an engineering design process to build an *innovative packaging prototype/digestive system model*. As a next step and to expand *his/her* tech skills, *Name* is encouraged to research how food scientists use digital tools to track food from farm to table, or try coding a computer animation that shows a grain's journey through the human body.

Level 3: *Name* effectively applied STEM skills and scientific concepts during our collaborative STEMterprise project. *S/He* successfully demonstrated a solid understanding of the human body by explaining the specific roles the digestive system plays in breaking down ingredients, and how the circulatory system pumps oxygen and nutrients throughout the body. *Name* accurately understands how lifestyle choices can impact the health of these vital systems and applied this learning to their product. *S/He* worked cooperatively to build a *functional pizza box/ digestive system model*. To build on *his/her* scientific communication skills, *Name* is encouraged to focus on the revision stage of the engineering design process, using peer feedback to test and refine *his/her* ideas more independently.

Level 2: With teacher support, *Name* is developing *his/her* STEM skills and understanding of body systems through the pizza business challenge. With guidance, *he/she* participated in an inquiry process to identify the basic organs of the digestive and circulatory systems, showing a developing grasp of how food is processed and moved through the body. *Name* is working towards explaining how different choices can affect heart and digestive health. *S/He* contributed to constructing the team's *pizza box prototype/ digestive system model*. As a next step, *Name* will continue to be supported with structured checklists and graphic organizers to help *him/her* independently plan, test, and record observations when working through the engineering design process.

Grade 5 Sample Math Comments

Level 4: *Name* demonstrated excellent mathematical modeling and data literacy skills through the STEMterprise pizza project. *S/He* independently explained the importance of sampling techniques and designed a comprehensive digital survey to gather customer preferences. *Name* analyzed the data accurately, determining the mean, median, and mode to make convincing arguments for *his/her* team's final recipe selection. In financial literacy, *Name* efficiently calculated unit rates for ingredients, estimated transaction costs, and designed a balanced sample budget to manage the business's finances effectively. To extend *his/her* learning, *Name* is encouraged to explore how changes in unit rates impact overall profit margins in real-world scenarios.

Level 3: *Name* applied effective data literacy and financial literacy skills during our class STEMterprise project. *S/He* successfully collected data using sampling techniques and selected the graph best suited to display customer pizza preferences. *Name* analyzed the survey data to identify the mode and used these results to help *his/her* group adapt a recipe. In financial literacy, *Name* demonstrated a solid understanding of budgeting by calculating unit rates for items and estimating basic transaction costs. To build further fluency, *Name* needs to practise multi-digit division calculations for determining complex unit prices.

Level 2: With teacher support, *Name* is developing *his/her* data literacy and financial skills through the pizza business challenge. *S/He* participated in collecting survey data and was able to record data into tables with assistance. With guidance, *Name* is learning to select appropriate graphs to display the results. *S/He* is showing progress towards calculating transaction costs and unit rates when determining the cost of making a pizza. To support *his/her* progress in financial literacy, *Name* is encouraged to practise basic multiplication and division facts up to 12x12 to increase accuracy when working with budgets.

Grade 5 Sample Language Comments

Level 4: *Name* used language impactfully and persuasively throughout the business development phase of the STEMterprise project. *S/He* applied critical comprehension strategies to analyze real-world case studies of successful entrepreneurs, gathering deep insight into marketing strategies. *Name* has skillfully created persuasive promotional materials, selecting sophisticated vocabulary and multimedia tools that successfully capture the attention of specific audiences. *S/He* diligently revised and edited text for proper conventions, ensuring *his/her* group's business pitch was highly polished and clear. *Name* is encouraged to continue varying sentence structures to enhance the narrative flow of *his/her* informational writing.

Level 3: *Name* showed great growth in writing persuasive pieces during the STEMterprise promotional tasks. *S/He* followed established success criteria to communicate clear business ideas and create engaging advertisements for *his/her* audience. *Name* demonstrated good comprehension skills by identifying the target market and interpreting peer feedback to improve *his/her* branding materials. *S/He* also showed consistent progress in editing and proofreading *his/her* own writing for proper spelling and punctuation. To further develop *his/her* text creation skills, *Name* could benefit from taking time during the revision stage to ensure a coherent flow between paragraphs.

Level 2: *Name* is developing *his/her* communication skills through the creation of media and promotional texts for the STEMterprise pizza shop. *S/He* contributed to brainstorming business ideas and designing the team logo. With teacher support, *Name* is learning to use persuasive language to appeal to an audience. *S/He* is working towards independently editing *his/her* written pieces for proper conventions. We will support *Name* by having *him/her* regularly review success criteria templates and check lists during the writing process to enhance the overall clarity of *his/her* work.

Grade 5 Sample Learning Skills Comments

Collaboration & Responsibility (Focus: Teamwork & Showcase Prep)

Excellent (E): *Name* consistently builds a supportive classroom community by working supportively and equitably with *his/her* business team. *S/He* respects diverse perspectives when resolving group conflicts and ensures that business tasks are divided fairly among peers. As a responsible student, *Name* takes full ownership of *his/her* designated business role, whether managing finances or marketing, and conscientiously collaborates during team clean-up. *S/He* serves as a wonderful example of leadership and stewardship within the class.

Satisfactory (S): *Name* works cooperatively with *his/her* peers during group tasks and is showing progress towards sharing the workload equitably. *S/He* accepts *his/her* assigned business role within the team and follows the group leader's directions to complete tasks on time. With teacher encouragement, *Name* is learning to resolve peer differences with empathy and is reminded to take an active role in cleaning up shared workspaces at the end of a lesson.

Initiative & Self-Regulation (Focus: Entrepreneurship & Design)

Excellent (E): *Name* demonstrates a creative, entrepreneurial spirit, displaying outstanding initiative when designing innovative and sustainable packaging for the pizza business. *S/He* sets clear personal goals, approaches complex STEM challenges with a high level of perseverance, and views mistakes as valuable opportunities for growth. *Name* routinely seeks out constructive peer feedback to refine *his/her* promotional designs, displaying an exemplary reflective practice.

Good (G): *Name* regularly displays initiative by proposing creative solutions during our pizza recipe adaptation and marketing lessons. *S/He* monitors *his/her* own progress reliably, working steadily through challenging tasks with positive determination. *Name* accepts feedback gracefully from peers and applies it effectively to adjust and improve *his/her* final business planning documents.

Single-Point Rubric



Name: _____

Single-Point Rubric		
Grows How you can strengthen your work.	Learning Goal	Glows Strong aspects to your work.
	I can be independent, productive, responsible and respectful during the challenge.	
	I effectively used the engineering design process (design, build, test, redesign) to create and improve my	
	I clearly communicated my choices and results.	
	I can evaluate the impact of what I created on society and the environment.	

Single-Point Rubric

Name: _____



Single Point Rubric		
Grows How you can strengthen your work.	Learning Goal	Glows Strong aspects to your work.
	Communication: I can use persuasive words to convince my audience to buy my product.	
	Knowledge: I can explain how the grain is grown and harvested in Ontario.	
	Application: My product price covers my costs and allows for a small profit.	
	Thinking: I can create a plan and positively solve problems with my team to achieve the goals for our granola bar business.	

STEMterprise Reflection



Name: _____

STEM Reflection

1. What was the greatest success in your work? Why did it work well?

2. If you had more time and materials, what is the one change you would make to one of your designs?

3. How could the work you did help people in real life?

STEMterprise Exit Ticket

Name:

What did you enjoy about this stage?

What was the most surprising thing you learned during this stage?

How has your understanding of _____ changed during this stage?

STEMterprise Exit Ticket

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STEMterprise

Learning Skills Self-Assessment

Name: _____

Goal	How I Did
Responsibility: I can take care of my plant and record its growth in my journal.	
Organization: I can organize my business plan and materials so our granola bar team stays on track	
Independent Work: I stay focused on my grain project even when the teacher is working with others.	
Collaboration: I listened to and included my team's ideas about the name and logo.	
Initiative: I can suggest ideas to make our granola bar better.	
Self-Regulation: I can persevere, stay positive, and keep working on my granola bar project, even when there is a challenge.	



Two Stars and a Wish

Feedback for: _____

	
	
	



Two Stars and a Wish

Feedback for: _____

	
	
	

STEMterprise 3,2,1

Lesson Title: _____

Name: _____

After this lesson, make notes using this organizer.

3 things I learned:

1.

2.

3.



2 interesting things:

1.

2.

1 question I have:

1.

Grade 4 Rubric and Self-Assessment

Name: _____

Single Point Rubric		
Grows How you can strengthen your work.	Learning Goal	Glows Strong aspects to your work.
	I can be independent, productive, responsible, and respectful during the challenge.	
	I effectively used the	

	engineering design process (design, build, test, redesign) to create and improve my water well, grain grinder, and/or Ozobot food chain path.	
	I can clearly communicate my choices and results.	
	I can evaluate the impact of machines on society and the environment.	

STEM Reflection

1. What was **the greatest success** in your Stage 2 work? Why did it work well?

2. **If you had more time and materials**, what is the one change you would make to one of your designs?

3. How do the **challenges you completed relate** to a real-world application of science or technology, or the need for simple machines and innovation?



Grade 6 Rubric and Self-Assessment

Name: _____

Single Point Rubric		
Grows How you can strengthen your work.	Learning Goal	Grows Strong aspects to your work.
	I can explain how the four forces of flight (lift, drag, thrust, and weight) work on my airplane or drone.	

	I effectively used the engineering design process (design, build, test, redesign) to create and improve my device.	
	I clearly communicated my choices and results.	
	I can be independent, productive, responsible and respectful during the challenge.	

STEM Reflection

1. What was the greatest success in **your final design** (for either the drone or the parachute)? Why did it work well?

2. If you had **more time and materials**, what is the one change you would make to your design to better manage one of the forces of flight (lift, drag, thrust, or weight)?

3. How does the challenge you completed (Drone or Parachute) relate to a **real-world application** of science or technology, or the need for **sustainability** in delivery methods?

