

CREATIVE COMPUTING CURRICULUM GUIDE



a preview of the third edition
from the ScratchEd Team at the
Harvard Graduate School of Education

WELCOME!

We are so excited to offer you a sneak peek of the third edition of the Creative Computing Curriculum Guide—often referred to as simply, “the Guide.” The third edition, aligned with the much-anticipated release of Scratch 3.0, foregrounds our commitment to student-directed explorations of computing, and incorporates feedback from educators around the world.

In this session, we will showcase our updated approach through the following four stations:



Walk through an introductory activity in Scratch 3.0



Experience open-ended project work as a learner



Adapt an activity to better meet your students' needs



Explore your assessment values and approaches

We hope these activities inspire you on your creative computing journey!

EXPLORE

WHAT IS THE CREATIVE COMPUTING CURRICULUM GUIDE?

The Guide is a collection of activities, ideas, and strategies designed to support educators in exploring creative computing with their students. Since the release of the first edition in 2011, the Guide has been downloaded over 100,000 times, and used by educators across the world. We are thrilled to be a part of this community of educators who strive to foster students' creativity, imagination, and interests through creative computing.

HOW CAN I SUPPORT CREATIVE COMPUTING?

Whether you are teaching in a K–12 classroom, a library, or a summer camp, you can support creative computing by encouraging your students to make projects that are personally meaningful and self-directed! Try visiting all of the stations today to get a more complete picture of creative computing in practice.

REFLECTING

What questions do you have about creative computing?





DIVING IN!

We designed the following “10 Blocks” activity as a way to get started with creative computing using the new Scratch 3.0 interface. Whether you are new to Scratch or an experienced user, we encourage you to engage with this activity as a learner, reflecting on your experience as you go.

10 BLOCKS

WHAT CAN YOU CREATE WITH ONLY 10 SCRATCH BLOCKS?

Create a project using only the 10 blocks on the following page. Use them once, twice, or multiple times, but try to use each block at least once.



START HERE

- ❑ Go to the Scratch 3.0 preview website:
<http://preview.scratch.mit.edu>

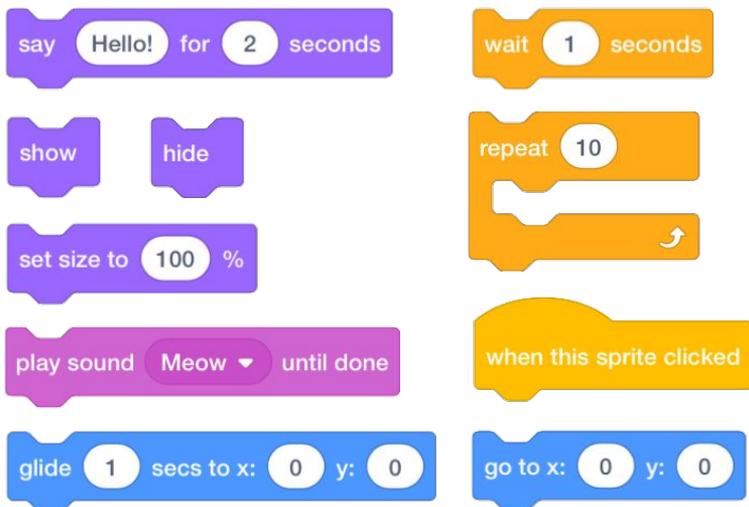
Not Now

Try It! 

View 2.0 Project

- ❑ Click on the "Try It!" button. --- 

- ❑ Now, test ideas by experimenting with each block.
- ❑ Mix and match blocks in various ways.
- ❑ Repeat!



SHARING

Once you are satisfied with your project (or after 10 minutes, whichever comes first), find a partner.

- ❑ First, take turns sharing your projects.
- ❑ When working with students, we adopt a framework of using “I notice..., I wonder...” statements. What did you notice about your partner’s project? What does this lead you to wonder about?

CREATE

OUR APPROACH TO PROJECT-BASED LEARNING

There is no knowing what students will make when they are given a blank canvas—we are constantly amazed by the projects we see! We encourage students to develop as computational thinkers by creating personally meaningful open-ended projects, experimenting and tinkering with ideas, and collaborating with others to give and receive feedback.

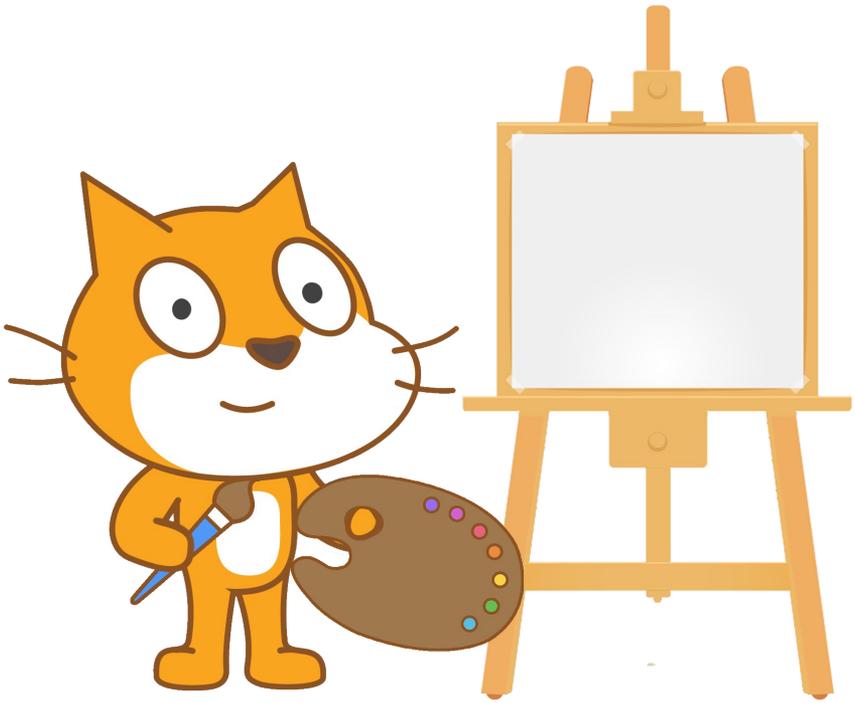
HOW DO I MAKE PROJECTS WITH THE GUIDE?

We designed the Guide as a starting point and inspiration for project-based creative computing work. The Guide contains resources on how to scaffold student learning through one or multiple short- or long-term projects. Resources in the third edition of the Guide include materials such as “Creativity Catalysts” and reflection protocols.

REFLECTING

What experiences have you had with project-based learning in the past?





DIVING IN!

We designed the following “Mini-Project” activity as an example of what open-ended projects with Scratch can look and feel like as a learner. We encourage you to create a project that interests you, while also reflecting on your experience throughout the activities.

MINI PROJECT

WHAT KIND OF PROJECT WOULD YOU LIKE TO MAKE?

In this activity, you will develop an open-ended project to work on in Scratch.

START HERE

This activity is split into four parts, each requiring about 15 minutes to complete. We recommend starting with only the first part of this activity and returning if you have time, after exploring other stations. However, if you get excited by your project, please stay and continue working!

PART ONE: PLAN

- Think of a project you would like to make.
- If you are struggling, turn the page to try out one of the Creativity Catalysts for inspiration.
- Create a high-level plan for your project using any or all of the following prompts:

What is your interesting idea? What would it look like if you took this idea and made it in Scratch?

Would it be a game? A story? A puzzle? A music video?
Something else entirely?



What resources (e.g., people, sample projects) might you have
or need to develop your project?

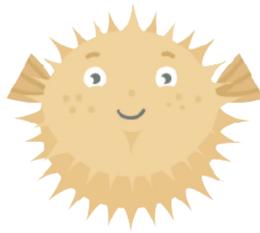


What is the first step you would take?



CREATIVITY CATALYST

MEET ARI THE PUFFERFISH. WHAT DOES ARI DO DURING THE DAY?



Circle something on your page that you think is interesting.
Make your Scratch project about this!

CREATIVITY CATALYST

WRITE DOWN 10 QUESTIONS YOU HAVE ABOUT ANYTHING!

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Circle a question on your page that you think is interesting.
Use your Scratch project to answer this question!

PART TWO: DRAFT

- Navigate to <http://preview.scratch.mit.edu>
- Spend 10 minutes making a first draft of your project. It does not need to be perfect, or even work as intended—just make anything!

PART THREE: SHARE

- Find a partner and take turns sharing your projects.
- Briefly describe the big idea for your project, and then what your project currently does.
- Share one thing you are struggling with or wondering about in your project. Ask your partner for any feedback.
- Listen as your partner shares their project, and provide thoughts and feedback.

PART FOUR: REVISE

- After sharing with a partner, and receiving feedback, try to imagine how you could incorporate that feedback into your project.
- Consider the following questions:

What do you like about your project so far?

What would you like to change about your project?



How has the feedback you received influenced your idea for your project?



What is the next step you would like to take with your project?



REMIX

WHAT IS REMIXING?

Remixing means taking something that already exists and adapting it to make it your own. Using chocolate chips instead of the raisins in your cookie recipe? That's remixing! Reusing a fellow Scratcher's score-keeping code in your new World Cup-inspired game? That's remixing! Expanding the scope of an activity to include content from another subject? Yep, that's remixing too!

HOW DO I REMIX THE GUIDE?

No matter your prior experience or expertise with computing, every educator is a co-designer of the creative computing experience. Educators remix the Guide by changing the timing of activities, integrating curricular content (e.g., poetry, algebra), or adjusting the language to meet students' vocabulary levels. You can change anything you want!

REFLECTING

When have you changed an activity to meet your students' needs better? In what ways did you change it?

A large, empty rectangular box with a dashed border, intended for a student to write their reflection on how they have changed an activity to better meet their students' needs.



DIVING IN!

We designed the following “Activity Adaptation” station to give you an opportunity to practice remixing activities from the Guide to suit your needs. This is an opportunity to make your ideal version of an activity.

ACTIVITY ADAPTATION

HOW CAN YOU CHANGE AN ACTIVITY TO BETTER MEET YOUR STUDENTS' NEEDS?

Collaborate with colleagues to creatively remix the “About Me” activity for your educational setting. Explore what your ideal version of this activity could look like!

START HERE

- Find a partner who teaches the same subject, age/grade level, geographic region, or environment as you.
- Turn the page to find the “About Me” activity.
- Working with your partner, think about the questions on this page, and write down how you would change the “About Me” activity.
- When you’re ready, mark up the activity with your changes!

PROMPTS

What do you like about the “About Me” activity?

What do you wish was different?

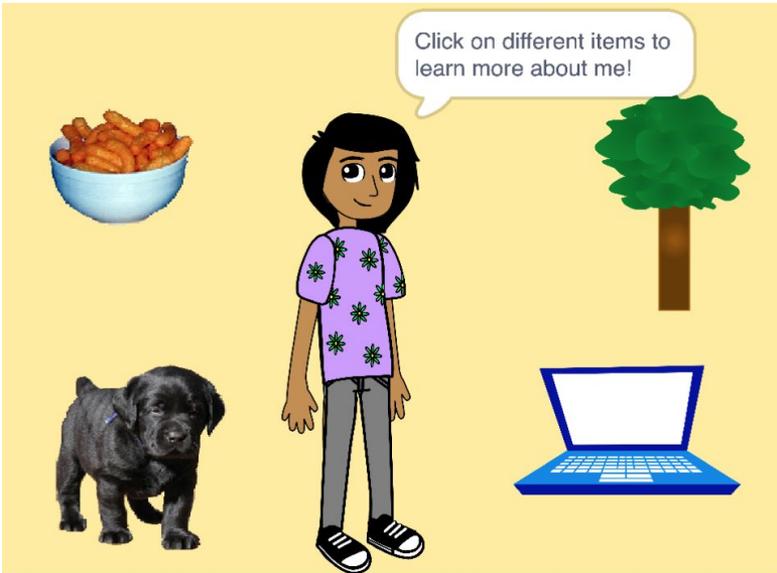
Are there any themes you would you like to explore using this activity?

List three ways you could change this activity to better meet your students' needs:

ABOUT ME

HOW CAN YOU COMBINE INTERESTING IMAGES AND SOUNDS TO MAKE AN INTERACTIVE COLLAGE ABOUT YOURSELF?

Experiment with sprites, costumes, backdrops, looks, and sounds to create an interactive Scratch project—a project that helps other people learn more about YOU and the ideas, activities, and people that you care about.

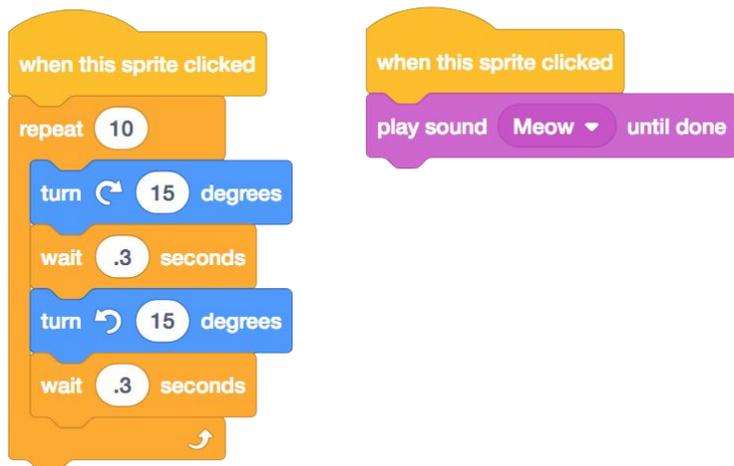


START HERE

- Create a sprite.
- Make it interactive.
- Repeat!



- ❑ Make your sprite interactive by adding scripts that have the sprite respond to clicks, key presses, and more!



THINGS TO TRY

- ❑ Use costumes to change how your sprite looks.
- ❑ Create different backdrops.
- ❑ Try adding sound to your project.
- ❑ Try adding movement into your collage.

FINISHED?

- ➔ Challenge yourself to do more! Play with adding new blocks, sound, or motion.
- ➔ Help a neighbor!
- ➔ Share your project with a partner and walk them through your design process.

ASSESS

OUR APPROACH TO ASSESSMENT

Our approach to assessment is process-oriented, with a focus on creating opportunities for students to talk about their own (and others') creations and creative practices. We view assessment as something that is done with students, to support their understanding of what they already know and what they still want to learn.

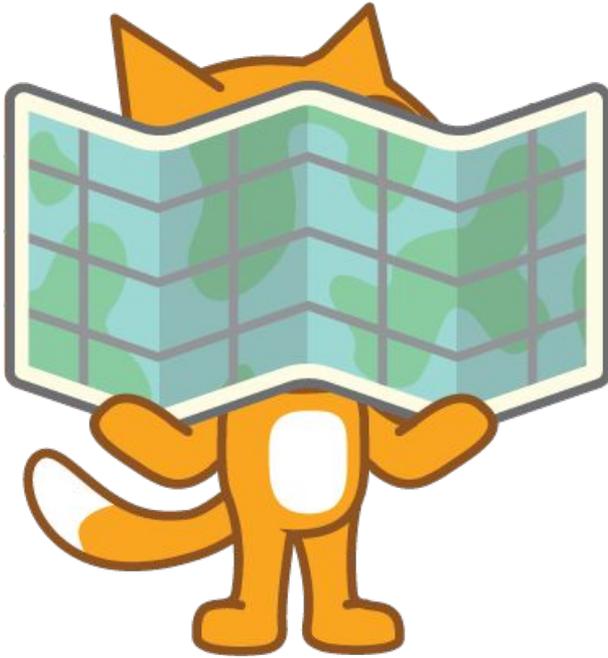
HOW CAN I ASSESS CREATIVE COMPUTING USING THE GUIDE?

Since the release of the Guide, we've received feedback from educators requesting more varied and comprehensive assessment materials. In the revised edition of the Guide, we include a more thorough description of our approach, along with a number of example assessments.

REFLECTING

What are your strategies for assessing creative work?





DIVING IN!

We designed the following “Assessment Expedition” activity to help you articulate your personal approach to assessing creative computing. As you complete this activity, we invite you to consider the types of assessments that might work in your classroom.

ASSESSMENT EXPEDITION

WHAT CAN CREATIVE PROJECTS COMMUNICATE ABOUT STUDENT LEARNING?

In this activity, you will look at a student's Scratch project and an example assessment method, and consider how these might align with your classroom context.

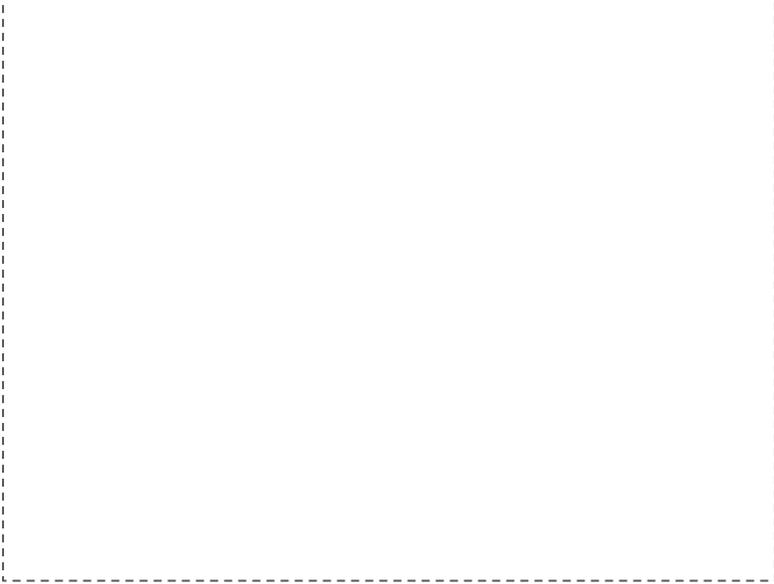
PART ONE: YOUR VALUES

There are many ways to assess creative computing, and there are many factors to consider when choosing an assessment method. Three questions that we take into consideration when thinking about creative computing assessment are:

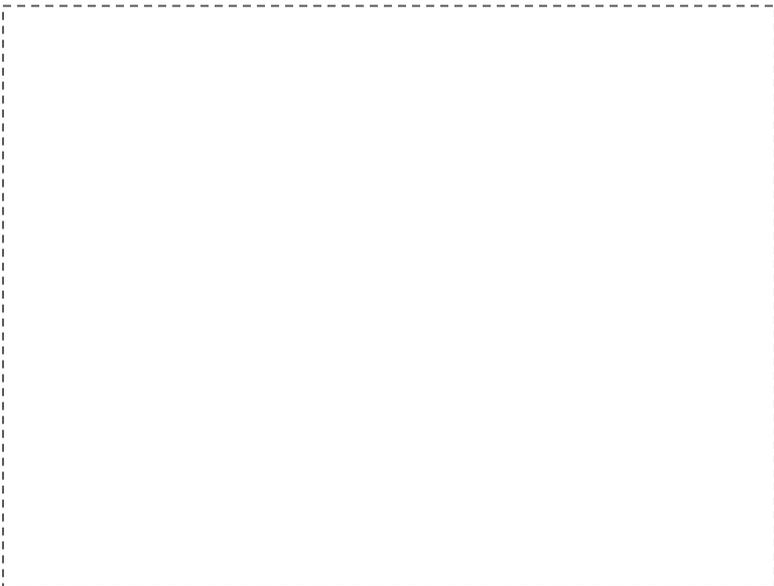
- Is the assessment focused on process (formative), focused on product (summative), or both?
- Is the assessment designed by students, teachers, or co-designed?
- Who contributes to completing the assessment? Teachers, or students, or both?

The assessment method(s) you choose depend on your learning objectives, classroom context, and assessment values.

What sort of feedback do you hope to provide to students when assessing creative work?

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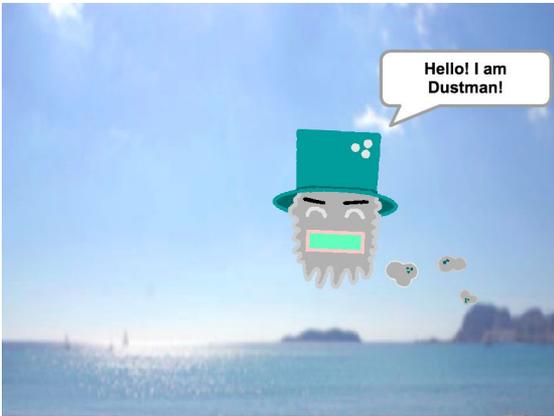
What role do you envision your students playing in the assessment process?

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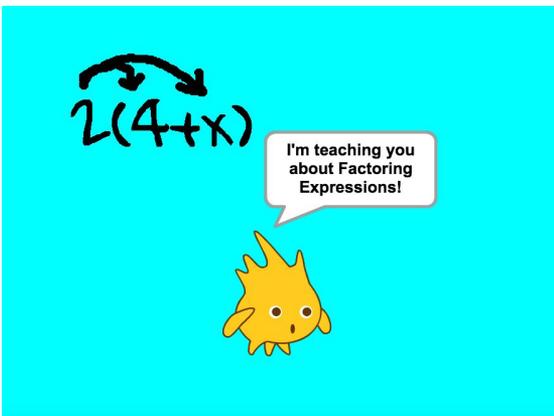
PART TWO: STUDENT WORK

With a partner, choose one of the following examples of student work to review:

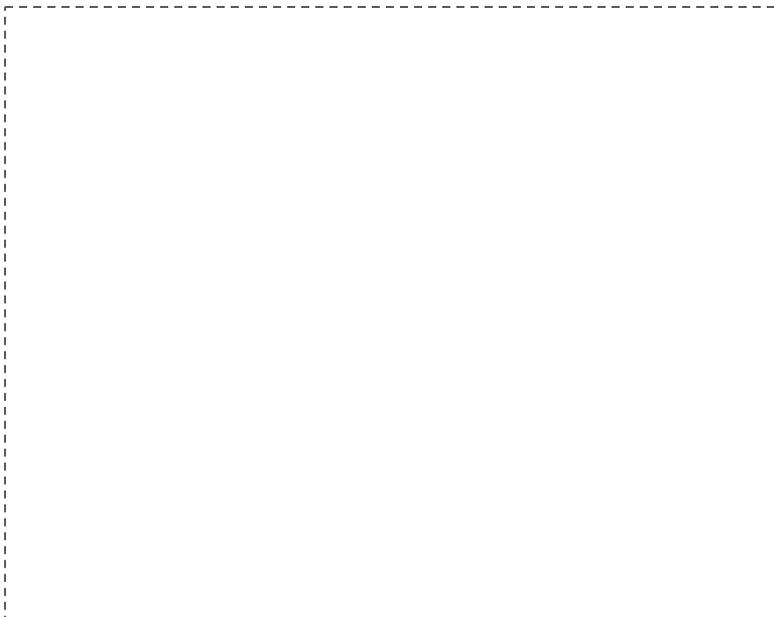
- High school animation class:
<https://scratch.mit.edu/projects/16988742/>



- Middle school math class:
<https://scratch.mit.edu/projects/133504421/>



What questions do you have about this student's process or product?

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What feedback would you give to this student?

A large, empty rectangular box with a dashed border, intended for the user to write their feedback for the student.

PART THREE: ASSESSMENT METHODS

In this portion of the activity, you will choose one of the following assessment methods to explore and discuss with a partner.

- Example Design Journal: bit.ly/DJexample
The practice of keeping design journals helps students brainstorm, plan, iterate, and reflect. Design journals can be digital or physical.

My Character



- He floats around in air, leaving behind dust. The dust he leaves behind make everyone hate him but he doesn't have any bad intentions.
- I had many outlines for different characters but when I started creating one on scratch, something totally different came out. This was my favorite one out of all my other characters.
- It was supposed to look like dust or some bacteria that is harmful to us.
- Despite its physical appearance, my character is nice and sympathetic. Unfortunately, nobody accepts his kindness because of his looks.

- Computational Thinking Rubric: bit.ly/CTrubric
We created this rubric as a tool to support the assessment of students' development of fluency with computational thinking practices.

EXPERIMENTING AND ITERATING	LOW	MEDIUM	HIGH
Describe how you built your project	Student provides a basic description of building a project, but no details about a specific project.	Student gives a general example of building a specific project.	Student provides details about the different components of a specific project and how they were developed.
Describe different things you tried out as you were working on your project	Student does not provide specific examples of what they tried.	Student gives a general example of trying something in the project.	Student provides specific examples of different things they tried in a project.
Describe revisions you made to your project and why you made them	Student says they made no revisions, or only states they made revisions but gives no examples.	Student describes one specific revision they made to the project.	Student describes the specific things they revised in the project and why.
Describe a time when you tried to do something new	Student provides no examples trying to do something new.	Student provides a general example of trying to do something new in the project.	Student describes specific new things they tried in a project.

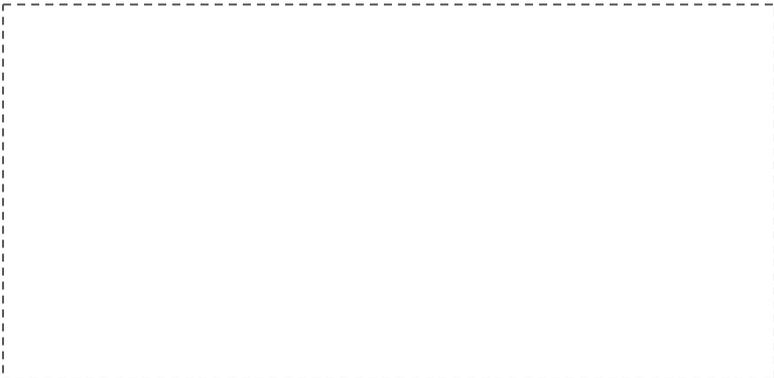
What kind of information can you gain from this assessment?



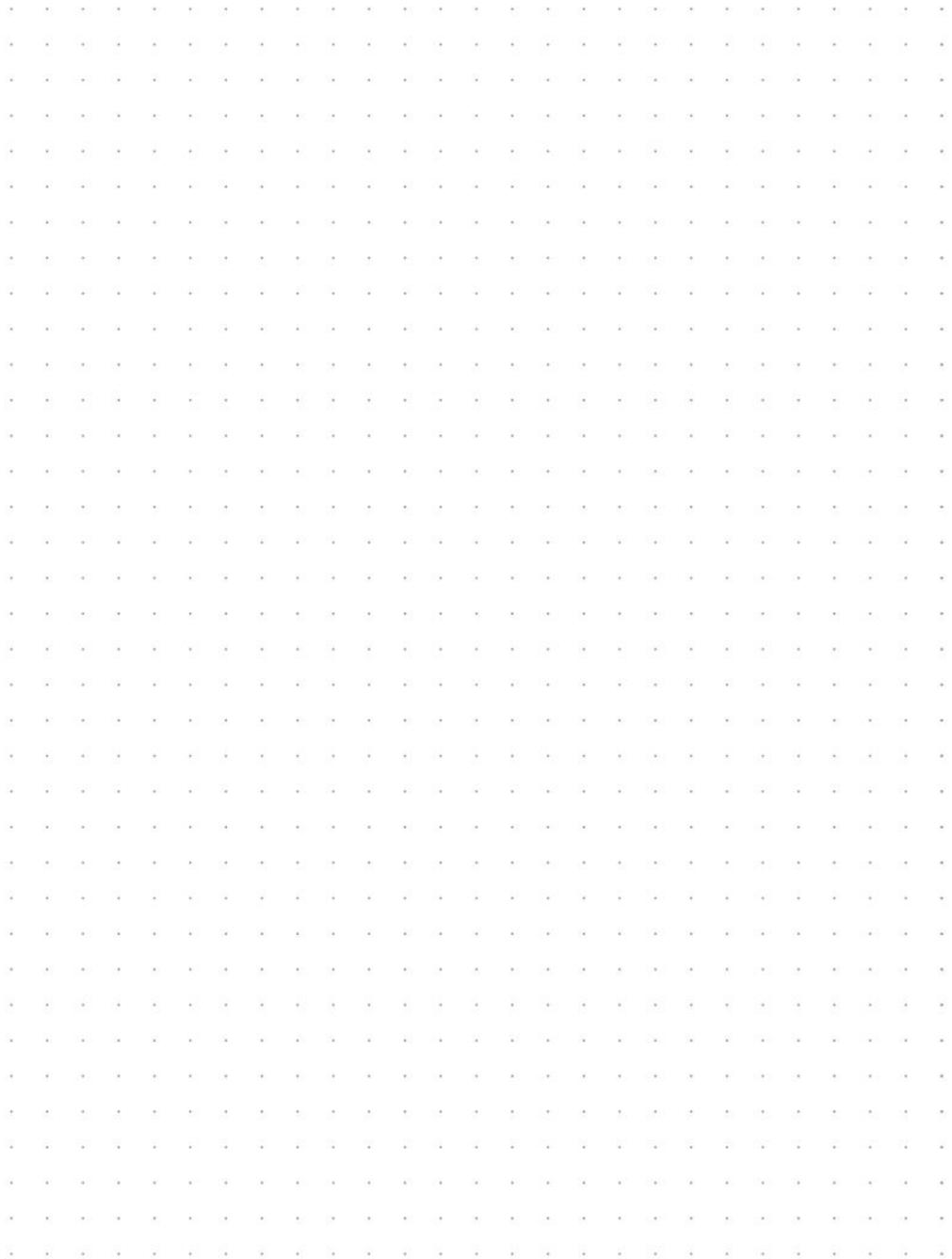
What questions are left unanswered for you about this student's process or product?

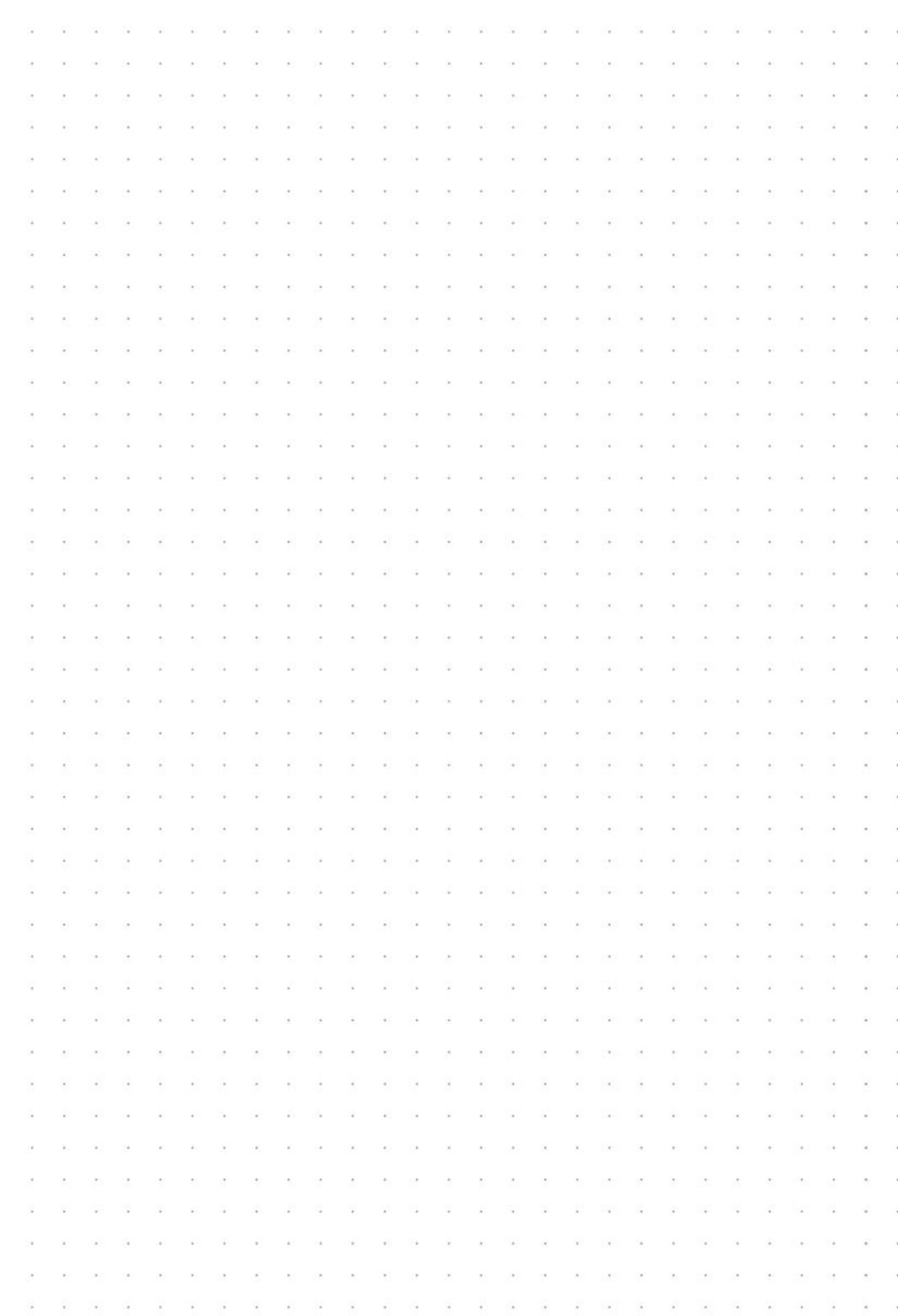


How might you remix this assessment to better align with your learning objectives or classroom context?



NOTES





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