Stay on the Right Path by Revisiting Goals and Progress

What will I get from this?	How much time do I need?
An activity for kids offering reflection on goals and progress	15-20 minutes

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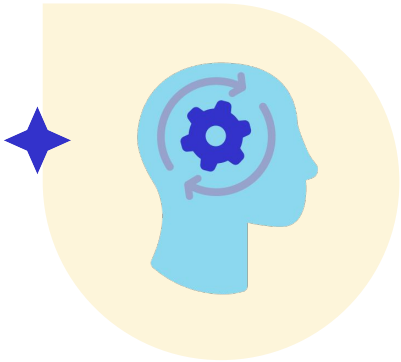
plan

If your long-term goals are your destination, then your plan is the path to it, letting you set off in the right direction.

But after a while, how do you know if you're on track?

Occasionally—perhaps at the beginning or end of a semester or school year—it's important to step back from your regular plans and activities and consider: **How far have you come? Are you still on the right path? If not, how do you get back on track?**

Use the questions below to reflect on your progress so far this year and to consider where the path ahead should go.

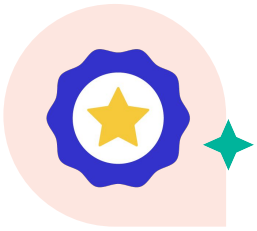


Parents and Coaches, the activity in this month's ***Engage*** supports this reflection process by guiding you through a discussion of your kid's answers to this activity, through a 1:1 Step-Back Check-In.

See *Engage* for more!

Reflect to Check Your Progress

1 **Where *were* you headed?**
Think about the long-term goals you may have set for yourself. At the start of this school year, what did you say would make it a meaningful year?



2 **Where are you now?**
Since the start of the year, what accomplishment are you most proud of?

What have been some of the biggest challenges for you?

Didn't set goals before? That's okay! You can give it some thought now. What did you hope for at the start of the school year?

3 **What's the destination *now*?**
Knowing yourself and what's happened so far this year, what will make the rest of this school year meaningful for you?

Reflect Back to Check Progress Toward Goals

What will I get from this?	How much time do I need?
A step-back guide for a weekly 1:1 check-in	15–20 minutes

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engage

Regular check-ins with kids are important as a way to deepen relationships with them and promote healthy social-emotional development. In a previous ***Engage***, we introduced weekly 1:1s to establish a mentoring relationship between you, the parent or coach, and an individual kid. We offered two types of 1:1 agendas: one for connecting and one for weekly progress.

This month, ***Engage*** provides the third: a guide to the **Step-Back Check-in**, in which you help kids take a fresh look at their current goals and assess where they are in order to move forward.

For kids, the activity in ***Plan*** sets the stage for this important conversation so make sure kids fill it out!

Goal-setting is an important lifelong skill, and weekly 1:1s check-ins are the perfect time to help kids practice. Setting and owning your own goals is part of **self-direction**, in which kids drive the actions to achieve their goals, with or without assistance.

Objectives of the 1:1 Step-Back

- Help kids grow in their Habits of Success by reflecting on the arc of their year so far and how their short-term goals and plans fit into their longer-term goals and plans.
- Help kids deepen self-direction by engaging in goal-setting, planning, and reflecting at different moments and on different scales.
- Help kids keep growing in skills and knowledge and stay on top of their learning by gauging progress toward academic goals and adjusting as needed.
- Deepen attachment and trust between the parent/coach and kid to show kids they *matter*.

Think of yourself as a kid's mentor, not their manager!

During a step-back check in, it's important that you shift into the role of a mentor to help guide your kids, not necessarily to tell them what to do. Aim to give kids personal, non-judgmental time to talk through the challenges and joys they're experiencing individually.

Let Kids Do the Talking!

As you conduct the **Step-Back Check-in** outlined below, let these actions guide your time with kids: **Pause, Paraphrase, and Probe!**

Let kids do most of the talking to ensure they're practicing the thinking needed for effective **self-direction**. Spend the majority of the check-in strategically asking clarifying questions to discern factual information and probing questions to uncover kids' thinking.

Pause →

- Express Care
- Share Power

Paraphrase →

- Express Care
- Provide Support

Probe

- Share Power
- Challenge Growth
- Expand Possibilities

1:1 Guide for the Step-Back Check-In

Important: Before you meet, have kids complete the planning and reflection activity in this month's ***Plan***. The agenda below provides the question posed in the ***Plan*** activity, as well as probing questions to help you dig deeper.

Greeting — 3 min

Greet your kid warmly and pose an easy question to get them talking, like, "What were one high and one low from the week?" Be careful not to let the whole check-in become a recap of the week.

Review goals for the year — 3 min

Review your kid's answer to the first question in the ***Plan*** activity:

Step 1: Where *were* you headed? Think about the long-term goals you may have set for yourself. At the start of this school year, what did you say would make it a meaningful year?

If necessary, dig deeper, perhaps by asking these probing questions:

What did you think would make your learning or school experience personally or academically meaningful?

What was one challenge that you hoped to overcome by the end of the school year?

What else was important to you then, that inspired goals for the year?

Reflect on progress — 6 min

Ask your kid to share their reflections from Step 2 of the ***Plan*** activity:

Step 2: Where are you now? Since the start of the year, what accomplishment are you most proud of? What have been some of the biggest challenges for you?

Ask probing questions to get kids to think deeply about their progress and challenges.

Are things going as planned?

Which parts are going as planned, and which parts aren't?

Why do you think things are or aren't going as planned?

What obstacles have you faced?

What strategies did you use to overcome these obstacles?

What help have you needed or do you still need?

What can you learn from how things have gone so far?

If you could do it again, what would you do differently, and what would you do the same?

Adjust goals if needed — 3 min

Let your kid know that because we grow with experience, it's natural for goals to shift during the year. Ask them to share their answers to the final question from ***Plan*****:**

Challenge kids to cite evidence. How do they know what their progress is?

Step 3: What's the destination *now*? Knowing yourself and what's happened so far this year, what will make the rest of this school year meaningful for you?

Closing — 2 min

Before leaving, tell your kid you'd like to describe back to them what you heard them say. Then summarize their reflection:

- **"At the beginning of the year your goal was..."**
- **"Since then..."**
- **"Now your goal is..."**

If you're in agreement about the details of their reflection, thank them for their great work, and end the 1:1. Otherwise, revisit the questions above to ensure that you part with a shared understanding.

Pause or ask probing questions to get kids to think more deeply about what they hope to experience or accomplish for the rest of the school year. Are their new goals specific, measurable, and achievable in the time available?

Projects to Develop Career-Ready Skills

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What is *Learn*?

Learn is a monthly project modeled on a research-based approach to learning called Project-Based Learning (PBL). PBL offers real-world, personally meaningful activities to challenge our thinking and inspire action. We believe that when kids pursue their passions, practice the Habits of Success, and develop strong cognitive skills they will be successful and fulfilled.

Each month, ***Learn*** offers a new project that marries kids' desire to change the world with the best learning science and the most important Habits of Success.

The **Appendix** provides additional guidance about how the project relates to skills and additional learning resources.

How does it work?

Each month, we provide ~20–25 days of learning activities to help kids develop an **Impact Project.** Through the project, they'll strengthen their college-ready skills and deepen their knowledge across subjects.

Projects are broken up into *challenges* to help kids think, read, write, experiment, and even build solutions to real problems.

- To start, there is one **essential question** for kids to explore. (Don't worry, we'll explain that term in a moment.)
- Next, we ask kids to **"find their why"**—this allows kids to make projects more personal and meaningful.
- And then kids dive into the **project** where they research, experiment, solve problems, and ultimately produce a final project they can proudly share.

You are not alone!

"Learning Support Tools" and "Coaching Moments" provide additional support along the way.

Make sure you check out the **Learning Support Tool**, which has extra resources for kids and parents. We all learn differently!

Project Overview

This is the essential question we'll think about:

How can the scientific process help us learn by experimenting?

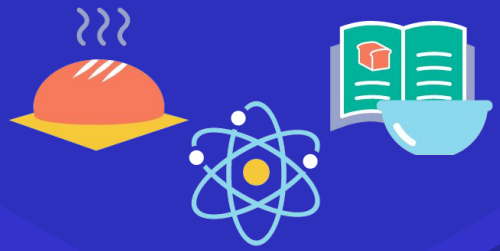
Essential questions are questions with no one, right answer. These are questions that never get old. And the answers you find will evolve over your lifetime. Each month we'll share an essential question that ties the skills you are learning to the impact you are making in the world. This will help you reflect in meaningful ways on your academic work, and also be a better global citizen.

Explore the Essential Question

LEARNING SUPPORT *tools*

This month's project is...

The Science of Bread



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Your project culminates in a final product you create and share.

In this project, you will learn **how to approach problems scientifically** through the process of baking bread. You'll practice baking a basic loaf of bread to serve as a baseline for your experiment. Then, using the science of bread-making and a scientific investigation process, you'll modify your basic recipe to see how small changes affect the final result.

You'll complete 3 challenges.

1. Select a first recipe and bake your first loaf of bread.
2. Learn about the science that turns flour, water, salt, and yeast into a loaf of bread, and learn how to design an experiment.
3. Plan, conduct, and document an experiment to improve your bread recipe!

You'll create a recipe documenting the procedure and results from your best bake. Your recipe will include these components:

Don't worry, we will teach you how to do this!

- Ingredients
- List of steps with explanations of what they do to the final product
- Photos of the process
- Suggestions for other changes to the recipe

This project is broken into 3 challenges to complete over the month.

Produce Your First Loaf

1

What are the basic steps to bread-making?

- 4 hours -

Explore the Science of Bread-Making

2

What can we learn about bread-making that will help us design an experiment?

- 5 hours -

Investigate Changes to Your Recipe

3

How do changes to your bread recipe impact the end product?

- 4 hours -

This calendar shows you how the steps fit into a month of learning and exploration.

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Explore the Essential Question & Project Overview	**Challenge 1** **Step a:** Find a recipe and prepare to bake	**Challenge 1** **Step b:** Bake your first loaf	**Challenge 1** **Step c:** Reflect on your first bake	**Challenge 2** **Step a:** The science of bread-making
DAY 6	**DAY 7**	**DAY 8**	**DAY 9**	**DAY 10**
Challenge 2 **Step b:** Designing an experiment	**Challenge 3** **Step a:** Write a testable question	**Challenge 3** **Step b:** Modify your original recipe	**Challenge 3** **Step c:** Bake using your new recipe	**Challenge 3** **Step d:** Reflect on the results of your bake

Plan Your Project Milestones

LEARNING SUPPORT *tools*

INSPIRATION

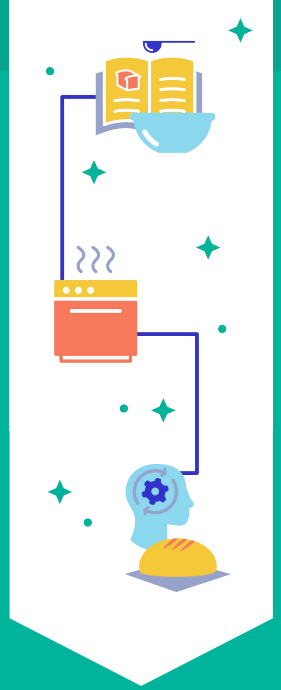
Baking in the real world!

Let's see how someone else turned to baking during the current pandemic:

Beth's Story

Beth Nguyen is a novelist who wrote about her experience baking cakes as the COVID-19 pandemic impacted our day-to-day routines. "In times of waiting and worry, it feels useful to gather ingredients and turn them into something that might bring sweetness to someone's day. Baking is so much more than following directions; it's about understanding process....Whatever the result, I know I'll be a little more ready for whatever comes next."

Read this article about Beth Nguyen's connection with baking.



CHALLENGE 1

Produce Your First Loaf

40% to complete

CHALLENGE 1:

Produce Your First Loaf

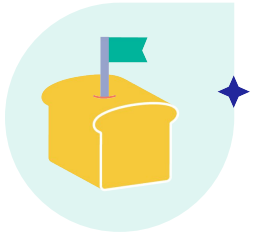
1

- 4 hours -

The first challenge is to **use a simple recipe to learn the basics of bread-making.** This recipe will be what you modify later in the project.

KEY TERM

A **recipe** is a list of ingredients presented with instructions for cooking or baking something to eat.



How do these steps help you?

Objectives: Find a recipe, prepare your ingredients, and bake your first loaf of bread.

a

Find a recipe and prepare to bake

You'll collect the ingredients you'll need and make sure you understand the steps needed to make bread.

What will you have at the end of this step?
A plan for how to bake a loaf of bread.

- 30–60 minutes -

b

Bake your first loaf

You'll make a loaf of basic bread from a simple recipe.

What will you have at the end of this step?
Experience making bread (and some delicious bread too!)

- 3 hours prep, 1 hour baking -

c

Reflect on your first bake

You'll think about how your baking went and record some data about how your bread turned out.

What will you have at the end of this step?
An idea of what you might want to change for future baking.

- 30–60 minutes -

Baking is very personal, but it is also universal.

Beth Nguyen, like many others, found joy and comfort in baking with her family during the Covid-19 pandemic. Experimenting with new recipes led to growth and satisfaction. “Not every item has turned out, but every effort has made me feel more capable,” she said.

Baking—particularly baking bread—is an activity thousands of years old, which extends across cultures. It is also an activity closely connected to experimentation and the scientific process—even if bakers don’t realize it!

For example:

Imagine **Erika**, an 8th grader who lives in Atlanta, Georgia.

We’ll follow Erika through the entire project, as she learns how to bake bread from scratch.

Look for Erika’s examples at each step!

Select a basic bread recipe for your first loaf.

Bread is a staple of almost every culture in the world, so selecting a basic recipe can be a personal decision. Think carefully about the type of bread you'd like to make. Does your family have a traditional bread you can try making?

There are many basic recipes to choose from. If you don't have a specific type of bread in mind, flour companies often provide basic recipes on their websites or packaging, like the two options we have linked to the right.

In any case, look for a basic recipe that calls for few ingredients and uses kitchen tools you have access to.

No-Knead Crusty White Bread
from the King Arthur Baking Company

Gluten Free No-Knead Bread
from Bob's Red Mill

Let's prepare to bake.

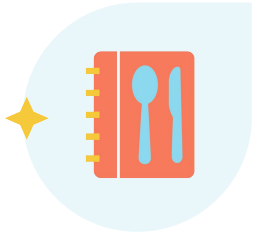
You've selected your recipe, and tomorrow (or one day soon) you'll bake! But before you bake your first loaf, you'll need to prepare.

1. **Read** the entire recipe from start to finish.
2. Gather all of the **ingredients** you need.
3. Make sure you have all of the **equipment** you need.
4. Carefully review the steps of the recipe and plan your schedule. If the recipe calls for dough to rise, be sure to **plan** for that time.

Use the ***Learning Support Tool*** to list your ingredients and plan your procedure.

TIP

- Ask an adult to help with this step and any step where you use the oven!
- You may need help getting ingredients and finding equipment.
- You'll also need to plan around others who might be using the kitchen at the same time you're baking.



It’s time to make your first loaf of bread!

If it’s your first time baking, there are some important things to keep in mind:

- Make sure you **wash your hands** before and after handling the dough. (And don’t eat raw flour!)
- Try to keep your workspace **clean** as you’re working. You’ll have less clean-up to do later, and you’ll have a safer workspace!
- If you use a microwave to warm your water, **be careful!** Water that is heated in the microwave can get really hot. Make sure you have a heat-proof oven mitt or towel to protect yourself.

Remember!

When it’s time to bake, make sure you have appropriate supervision before you start to use the oven!

While your bread is rising...

Every baker—and scientist!—makes mistakes. It's part of exploration and learning, and often mistakes lead to new discoveries.

Try to keep a **growth mindset** as you're working through these challenges. Baking is something that can take a really long time to master, but each careful attempt will help you learn, and you'll be more prepared for success the next time you bake!

If you get frustrated while making this dough, or if your bread doesn't work out this time, don't worry! The important thing is you learn from those challenges.

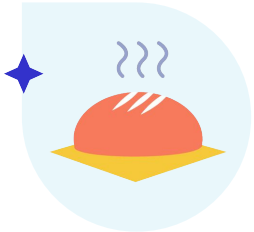
Growth Mindset

When we keep a **growth mindset**, we remember that any ability can be improved through hard work and practice, and we let that knowledge guide our actions.

Congrats! You just made your first loaf of bread!

Even if it didn't come out as you thought it might, you still did something new.

You're going to build on this loaf of bread later on, so it's important to reflect on how this went.



1. **What went well?**
2. **What didn't go well?**
3. **How can you change the recipe to make it better the next time?**

Jot down some thoughts on how the bread tastes. Ask your friends and family to share their thoughts too!

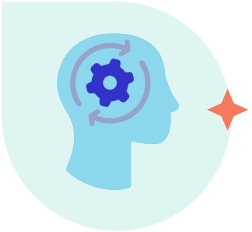
Use the ***Learning Support Tool*** to record your reflection!

Reflect on Your Bake

LEARNING SUPPORT tools

What did Erika learn from her bake?

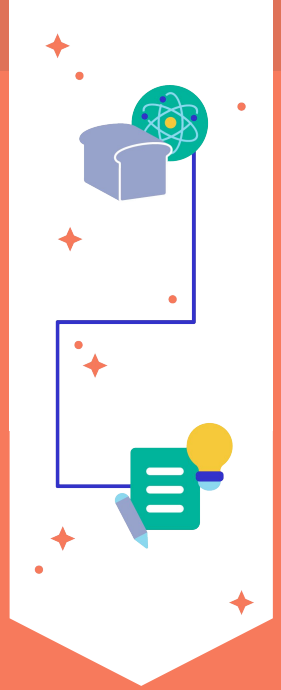
What went well and didn't go well?	What she'll do next time?
It was hard to keep ingredients organized and to remember how much of each she needed.	Next time, she'll measure ingredients into smaller containers before mixing them together.
The bread dough was sticky, and it was frustrating to mix.	Next time, she'll ask someone to help put more flour on her hands so the dough doesn't stick when she's shaping it.
The dough took longer to rise than expected.	Next time, she'll start making the dough earlier so it has more time to rise.



CHALLENGE 1:

You just finished your first challenge!

Nicely done!



CHALLENGE 2

Explore the Science of Bread-Making

65% to complete

CHALLENGE 2:

Explore the Science of Bread-Making

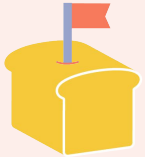
2

- 5 hours -

This challenge helps you better **understand the processes** that turn basic ingredients into bread. You'll learn important terms and encounter questions that will help you **plan your scientific investigation.**

KEY TERM

A **variable** in a scientific experiment is something that changes.



How do these steps help you?

Objectives: To better understand how the ingredients and recipes steps turn dough into delicious bread and design a scientific experiment to see what happens when you change the recipe.

a

The science of bread-making

You'll learn what is happening in the dough as it rises, when you knead it, and as it bakes, and you'll encounter different variables in bread-making.

What will you have at the end of this step?
New information that can help you design an experiment.

- 30–60 minutes -

b

Designing an experiment

You'll learn how to design a simple experiment to make your next loaf of bread even better!

What will you have at the end of this step?
A list of variables you could change in your recipe.

- 30–60 minutes -

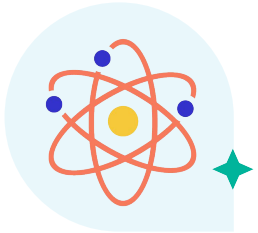
There's science in your bread!

When you took your basic ingredients and mixed them together to make your bread, you actually were using a ton of science, but you probably didn't even realize it!

When it comes to making bread, there are three major processes that determine how it turns out:

1. **Rising**
2. **Kneading**
3. **Baking**

In this challenge, you're going to explore how these processes affect the end result of your bread.



TIP

This video from HowStuffWorks gives a good overview of what's happening when you make bread.

Does it sound complicated? Fear not! **Even the world's best bakers were brand-new at one point.** Through learning and practice they grew their baking knowledge and skills. You can too!

Let's explore the first process—rising.

The bread recipe you used may have called for yeast to make the bread rise. This process is also called **leavening**. The type of leavening you use might be one **variable** in your experiment.

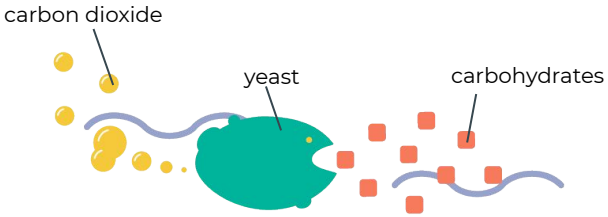
Yeast is a **biological leaven**. In other words, it's a fungus. That's right. **It's alive!**

Yeast eats carbohydrates (sugars and starches) and produces carbon dioxide gas—the same gas that makes the bubbles in your favorite soda!

Flour contains a lot of these carbohydrates, so when you mix the yeast into the flour, they start eating up the carbohydrates and making lots of tiny bubbles. Over time, these bubbles are what makes your bread rise!

This video provides more information about types of yeast and how they work.

Other recipes call for **chemical leavening,** using baking powder or baking soda. These recipes use a chemical reaction to create the carbon dioxide bubbles.



TIP

Some breads are **unleavened**, which means there is no rising agent added to the dough. They're generally flat breads.

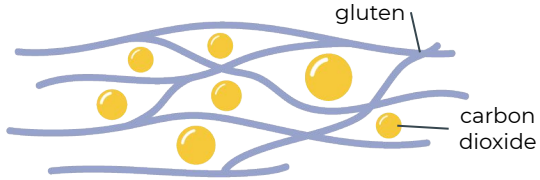
How does your dough trap all of those bubbles?

For your bread to rise, that gas made by the yeast needs to be trapped. That's where gluten comes in!

Gluten is a name for a group of proteins commonly found in wheat flour. When these proteins mix with water, they form a stretchy, elastic network in the dough that traps all of the gas from the yeast. Like tiny balloons, they fill with carbon dioxide. This makes the bread rise!

Kneading—that is, pressing, folding, and stretching the dough—can make the gluten network in the bread stronger, making for a more chewy texture, and potentially, bigger bubbles in the bread. One **variable** in a bread-making experiment could be the amount of time spent kneading.

Take a look at **this video from "America's Test Kitchen"** for a nice demonstration of how gluten works. Look for the **variable** in this video's experiment.



TIP

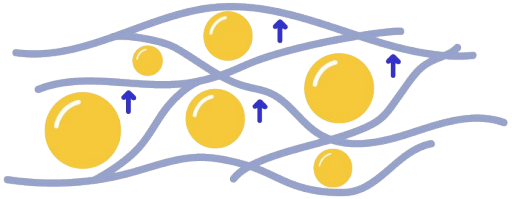
In gluten-free breads, other ingredients are added to create a similar structure. This video shows how "America's Test Kitchen" altered pizza crust to make it gluten-free. Take note of all of the different variables they experimented with.

Finally, what is happening to the bread in the oven?

When your dough is baking, a lot is happening. The heat of the oven makes the gas bubbles in the dough expand, which makes the dough puff up even more. This video from "NBC News Learn," shows what is happening to the yeast as bread is baking in the oven.

There are other chemical reactions taking place while your bread is baking as well, causing the dough to set and brown.

Think back to your first loaf. What temperature was the oven? The oven temperature is another variable you can change. This interesting video from the cooking website "Mashed" explains some of the effects that high and low temperatures have on our baking—and some of the history behind ovens themselves!



As a treat, check out this **TEDEd video,** which explains what's happening in the oven when cookies bake. It's not bread of course, but some of the principles are the same. And who doesn't love cookies?

Let's learn about experimental design.

In the last step, you learned about the science of bread-making and discovered some of the variables that affect how bread bakes.

In this step you'll learn how scientists design experiments, so that you can design your own in the next challenge.

- You'll learn the different types of **variables** you should have in an experiment.
- You'll learn what a **control group** is, and why it's important.
- Finally, you'll **brainstorm variables** you can change in your recipe.

TIP

Learning experimental design might seem scary, but remember with practice, **this is a skill you can build!** In fact, that's one of the most important goals of this project—helping you approach problems scientifically!

How do scientists design experiments?

Scientists design experiments by **changing one thing** at a time and **observing the effect** of that change.

All experiments have two types of variables: **independent variables** and **dependent variables.**

1. **INDEPENDENT**— the thing the scientist (that's you!) modifies because they think it will affect the results.
2. **DEPENDENT** — the thing that changes **because** of modifications to your independent variable. This is usually what you measure.

The table below provides a few examples of variables in a baking experiment.

INDEPENDENT VARIABLES	DEPENDENT VARIABLES
• The type of flour you use	• The taste of the bread
• How long you let the bread dough rise	• The size of the bubbles in the bread
• How much yeast you use	• The color of the crust
• How long you bake the bread	• The texture of the bread

What else do scientists need in an experiment?

In addition to variables, scientists need to have a **control group** in an experiment.

- A control group is like a **baseline.**
- Scientists compare the results of the experiment to the control group to see if there is a change to the dependent variable.
- For this project, your control group is the loaf you made in Challenge 1.

One more thing about experiments...

When designing an experiment, it is important to **keep everything the same except** for the changes you make to **the independent variable.**

For example, if you want to test how different flour types affect your bread, then you should only change the flour type in each loaf and keep the rest of the recipe the same.

If you don't keep the other variables constant, you won't be able to tell which change you made to the recipe caused which effect.

Baking bread is great for experimentation.

The different steps and ingredients in baking provide lots of ways to approach an experiment. In a moment, you'll make a list of possible independent variables to use in your experiment. First, look at what Erika came up with.

Variable	How could I change it?	How might my bread be different if I change this?
Amount of yeast	Increase it	Maybe the yeast make more bubbles and the bread is fluffier
Amount of rising time	Decrease it	Maybe there will be fewer bubbles, so the bread will be denser
Amount of kneading	I could knead the bread dough next time.	Maybe kneading will make the gluten stronger, so the bread is chewier

Let's brainstorm your recipe variables!

Now that you know what rising, kneading, and baking do in the baking process, and how **variables** help you design a scientific investigation, think about the variables you could change in your recipe.

Consider the different ingredients and steps in your first bake. Make a list of these variables, and for each one, ask yourself:

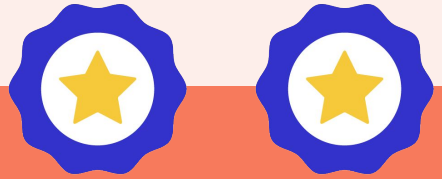
- How could I change it?
- How might my bread be different if I change this?

The ***Learning Support Tool*** will help you structure your thinking.
In the next challenge you'll use **one** of these variables to design a **scientific investigation** to see what happens when you change the recipe.

Brainstorm Baking Variables

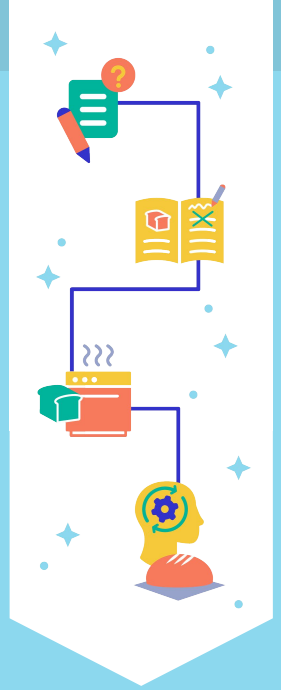
LEARNING SUPPORT *tools*

CHALLENGE 2:



You just finished your second challenge!

Nicely done!



CHALLENGE 3

Investigate Changes to Your Recipe

100% to complete

CHALLENGE 3:

Investigate Changes to Your Recipe

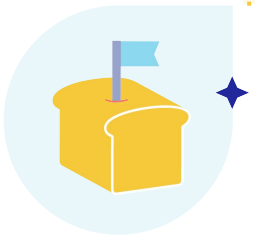
3

- 4 hours -

As you complete this challenge, you will be using what you've learned about the science of bread to **try to improve the original recipe** through a controlled experiment.

KEY TERM

A **controlled experiment** is an experiment that changes one independent variable and keeps everything else the same.



How do these steps help you?

Objectives: To make a plan to revise your original recipe and test your new recipe with another round of baking

a

Write a testable question

You'll use what you learned in Challenge 2 to write a testable question and hypothesis.

What will you have at the end of this step?
A testable question and hypothesis.

- 20–40 minutes -

b

Modify your original recipe

You'll decide how you are going to modify the original recipe to try to answer your question.

What will you have at the end of this step?
A new recipe you'll use to make a new loaf of bread.

- 20–40 minutes -

c

Bake using your new recipe

You'll use your new recipe to bake some more bread!

What will you have at the end of this step?
Fresh bread, and an answer to your testable question!

- 3 hours prep, 1 hour baking-

d

Reflect on the results of your bake

You'll look back at how your bread came out and come up with new improvements you could make to the recipe.

What will you have at the end of this step?
A recipe for your best loaf of bread.

- 20–40 minutes -

Every experiment needs a testable question and a hypothesis.

To conduct an experiment, you need to know specifically what you're testing for. **A testable question** is often asked like this:

"How does [independent variable] affect [dependent variable]?"

"If I change [this about my recipe], then [this will happen to my bread] because [this reason]."

In addition, scientists will make a hypothesis. **A hypothesis** is a prediction of what the scientist thinks the answer to their scientific question will be, based on what they know already. A hypothesis is often written as an "if...then...because..." statement, like this:

Erika also identified a testable question and a hypothesis.

Erika noticed that the dough she made the first time took a long time to rise, so she wanted to see how the rising time affects the size of the bubbles in her bread.

Her testable question:

"How does the dough's rising time affect the size of the bubbles in the finished bread?"

Her hypothesis:

"If I let the dough rise for longer, then the bubbles in the bread will be bigger because the yeast will have more time to make gas."

Let's identify your testable question and hypothesis

Step 1:

Using your brainstorm from the previous step, choose one independent variable and one dependent variable to form your question.

Remember, the only thing you'll change in the recipe is your independent variable. You'll keep everything else the same.

? **"How does [independent variable] affect [dependent variable]?"**

Step 2:

Using what you've learned about the science of bread, make a hypothesis that answers your testable scientific question.

? **"If I change [this about my recipe], then [this will happen to my bread] because [this reason]."**

TIP

Keep in mind, you might make a hypothesis that ends up not being correct at the end. **This is completely okay!** You'll still have learned something. For now, just make your best prediction.

Write a Testable Question and Hypothesis LEARNING SUPPORT tools

How can you test your hypothesis?

You've written a testable question and made a hypothesis that you think answers the question. Next, you'll figure out an experiment to test your hypothesis!

Your experiment will use your recipe from the first challenge as a starting point, and you'll **modify the recipe** to answer your question and test your hypothesis.

In your experiment, make sure you **only change one variable** in your recipe—that's your independent variable.

How did Erika modify her recipe?

Erika decided to make some changes to how long she let the dough rise. Her original recipe had the dough rise for 2 hours.

For her experiment she decided that she would make two loaves:

- One would rise for 2 hours 30 minutes.
- One would rise for 2 hours 45 minutes.

Everything else in her new recipe would stay the same as in the original.

Let's modify your recipe!

Step 1 Take a good look at your original recipe. Look for the step or steps in the recipe where your independent variable shows up.

Step 2 Rewrite (using the Learning Support Tool) or carefully annotate these steps to record your modification.

Careful documentation creates a record of your experiment, which is especially important if you want to conduct the experiment multiple times with different changes to your independent variable.

TIP

You can do this step more than once. Each time you test a change to your independent variable, you'll learn something and get closer to the perfect loaf!

With careful planning, you can test multiple versions of your independent variable at the same time, like Erika did in the example. Remember, your first loaf serves as your control group.

Modify Your Original Recipe

LEARNING SUPPORT *tools*

COACHING *moments*

You might be wondering...

“What if my new recipe doesn’t work?”

One of the most important parts of being a scientist is recognizing that failure is always an option, and that’s okay!

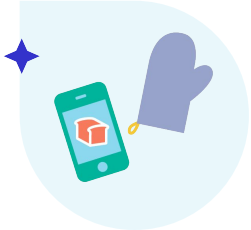
Science teaches us to try and try again, so it is okay to make mistakes! Some of the biggest scientific discoveries are the result of someone making a mistake and then learning from it.

Even if your bread doesn’t turn out like you thought—or your hypothesis is proven false—don’t feel bad! You will learn something with each attempt, whether you succeed or fail.

Time to bake!

Gather your ingredients and ask for the help you need. It's time to test your hypothesis using your new recipe—that is, the experiment you designed! Remember:

- **Follow the recipe carefully** so you can keep the other variables constant.
- **Take some pictures** (or have someone take them for you) so you can include them as documentation in your reflection or on your recipe.



TIP

Make sure you're safe! Ask an adult for help using the oven or heating up the water for the yeast.

Don't forget to wash your hands before and after handling the dough (and don't eat raw flour!)

How did your new recipe turn out?

Congratulations on making another batch of bread! Take some time to reflect on how it went. Think about the following questions:

- What went well?
- What didn't go well?
- **Was your hypothesis correct?** How did the changes to the recipe affect the final product?
- How was the bread different this time compared to last time?
- How can you change the recipe to make it better the next time?

The ***Learning Support Tool*** can help structure your reflection.

Reflect on Your Experiment

LEARNING SUPPORT *tools*

Putting it all together

Now that you've made changes to the recipe, it's time to write up a recipe card you can use again and share with others!

- Make sure you **include a note** citing the original recipe and a brief description of how you changed the recipe from the original version.
- Consider including **pictures** of how you baked your bread so you can remember the steps you took.

And remember, if your bread didn't turn out the way you hoped it would, don't worry! Every baker has had unsuccessful bakes—you're in good company!

TIP

You're not done until you want to be! The process you used to identify a question, make a hypothesis, and test your result can happen over and over again, until you've decided that your recipe is perfect! Feel free to repeat these steps until you're satisfied.

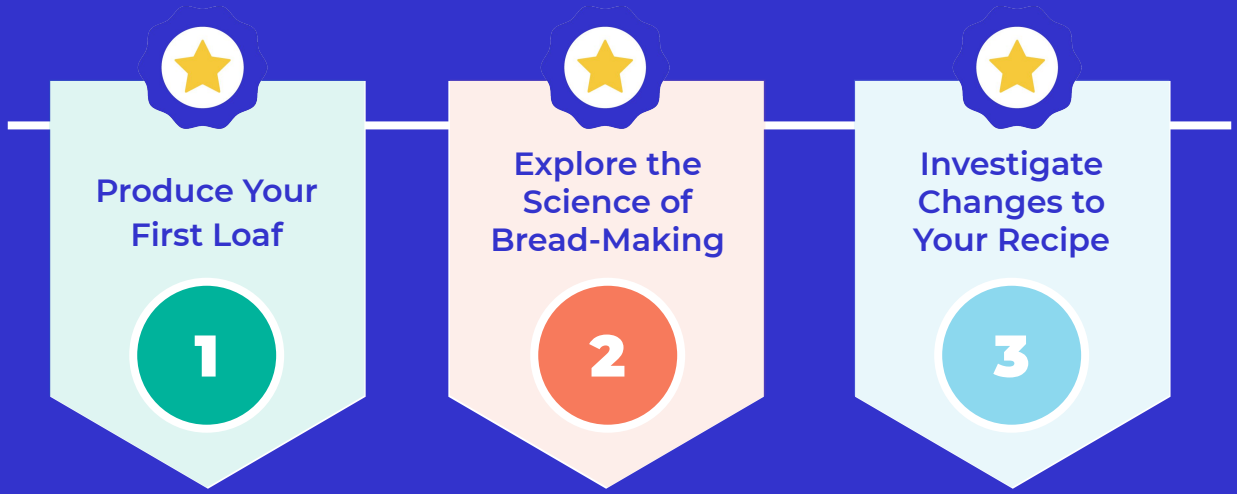
Document everything so you can remember what worked and what didn't!

My Final Recipe

LEARNING SUPPORT tools

You did it!

All 3 challenges complete.
Time to *Celebrate*!



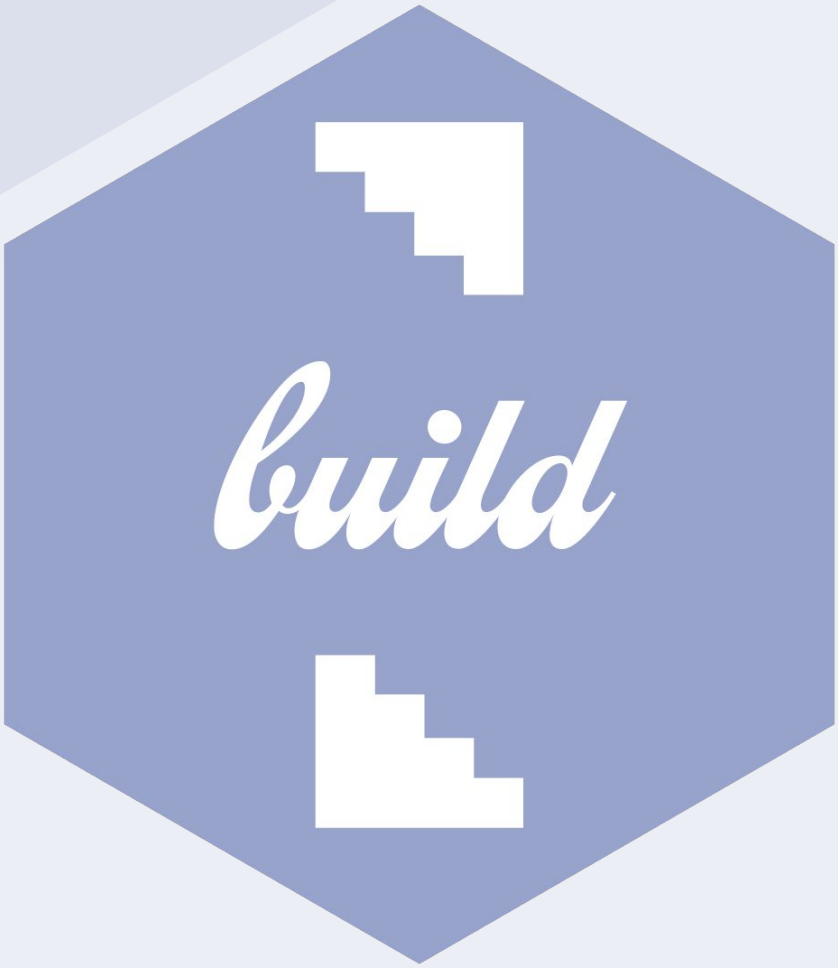
Celebration of Learning Reminder!

Remember, a **celebration of learning** is an opportunity for you to showcase your work, feel pride in your accomplishments, and expand your comfort zone to present to family, friends, and the community.

The celebration is a terrific opportunity to share your final product and everything you've learned in making it. So, let's celebrate! Everyone is excited to see what you've learned.

Prepare for Your Celebration

LEARNING SUPPORT tools



Explore tools to build learning superpowers for life.

What will I get from this?	How much time do I need?
A “best-of” list of apps to keep kids on track in reading, writing, and math	Varies by student

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build

Foundational Reading and Writing

How can I make sure my kids are developing the appropriate foundational skills in reading and writing?

All kids should have opportunities to read self-selected, longer works of fiction and non-fiction, ideally spending 20–30 minutes per day reading, either to themselves or out loud.

In addition, the following online tools offer additional opportunities for building foundational knowledge in reading, writing, conventions of language, and speaking and listening.

Reading and Writing Product	What it is
BrainPOP	BrainPOP, a trusted learning resource supporting core and supplemental subjects for millions of learners worldwide, offers playful, reflective, and global content for kindergarten through middle school. www.brainpop.com/english
CommonLit	CommonLit offers more than 2,000 high-quality free reading passages for grades 3–12, complemented by aligned interim assessments. Resources are flexible, research-based, effective (as proven by third-party review), aligned to standards, and created by teachers. www.commonlit.org
Khan Academy	Khan Academy's free, personalized learning platform offers reading and vocabulary topics from early learning through 9th grade. Khan Academy has a vast library of lessons and practice created by experts and proven to support learning. www.khanacademy.org/ela
ThinkCERCA	ThinkCERCA is an award-winning program for personalizing literacy instruction for students. Lessons are designed to teach students how to read, write, and think critically across content areas. www.ThinkCERCA.com www.homeschoolbuyersco-op.org/thinkcerca/

Foundational Math

How can I make sure my kids are developing the appropriate foundational skills in math?

The following online tools offer opportunities for building foundational knowledge in math.

Math Product	What it is
BrainPOP	BrainPOP, a trusted learning resource supporting core and supplemental subjects for millions of learners worldwide, offers content for kindergarten through middle school. www.brainpop.com/math
DreamBox	An adaptive elementary and middle school math product offering continuous formative assessment in and between lessons, providing the right next lesson at the right time. DreamBox personalizes instruction and uses rich visuals, sound design, and interactivity to support deep math comprehension. www.dreambox.com
Khan Academy	Khan Academy's free, personalized learning platform offers math topics from early math through high school. Khan Academy has a vast library of lessons and practice created by experts and proven to support learning. www.khanacademy.org
Prodigy Math	An adaptive learning platform in which students explore the Prodigy Math Game, where they answer math questions to complete epic quests and earn in-game rewards. Offers a premium version as well as 1-on-1 math tutoring. www.prodigygame.com
Teach to One Roadmap	An adaptive tool for math instruction that starts with a diagnostic assessment, pinpoints the skills a student must master, and provides an academic roadmap to get students to where they need to be. Subscription-based or free with a school-based account. https://teachtoone.org/roadmaps/

What Might Kids Do, If They Believe Anything Is Possible?

What will I get from this?	How much time do I need?
Ways to cultivate growth mindset in ourselves and in kids	10–15 minutes

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grow

You may have already heard of Growth Mindset. This popular term comes from psychologist Carol Dweck's influential research showing how kids' mindsets influence achievement—specifically that **kids' achievement can be improved when they possess the belief that intelligence and ability can be developed.** Having a growth mindset helps kids change how they think about themselves, how they behave, and **what they believe is possible!**

But, what does a growth mindset really look like, and what can parents and coaches do to foster a growth mindset in kids?

Step 1: Understand what a growth mindset is—and what it isn't.

Growth Mindset is a habit—one of the **16 Habits of Success—**that you can develop, practice, and improve. Having a growth mindset means believing abilities and knowledge grow and evolve with effort and support over time. It means knowing that when we can't do something, **we just can't do it *yet***. When we're demonstrating a growth mindset, we're choosing to be patient with ourselves, trying multiple strategies to overcome obstacles, and continuing our efforts in the face of adversity, even when we might want to give up.

According to Dweck, **Growth Mindset is about more than just effort.** It's also about changing strategies when our efforts fail—knowing that by changing our approach we might have more success. Effort without progress is just spinning wheels. So praise kids' efforts as means to an end (learning!) not as the end itself.

It's important to understand that **each and every one of us possesses a combination of fixed and growth mindsets, within and across all of the areas of our lives.** For example, a kid might spend hours at a batting cage, practicing to improve their swing, but in another situation, the same kid might think, I'm not a good writer or I'm not good at math. Acquiring a growth mindset often means transferring the habit from one situation to another.

Think about yourself. How do you react when you face challenges, mistakes, or shortcomings? Does it differ depending on the situation? Recognize the thoughts and actions where your fixed mindset appears (e.g., "This bread is terrible! I'm so bad at baking.") and try to improve your behaviors, so kids can see a model of how setbacks can be helpful rather than harmful (e.g., "The bread didn't turn out, but I learned something I can use the next time. I'm going to try again."

Step 2: Understand your kid's mindset in different situations.

Before you can help a kid shift toward a growth mindset in all areas, you need to understand their mindset in different situations. Here's an activity you can do to evaluate your kid's mindsets:

1. Think about your kid's behaviors within a specific context or environment, such as a single subject in school, like math or reading; a specific activity, like a sport or hobby; or a particular habit, like self-regulation or time management.

2. Think about their behaviors in a second situation, perhaps one where they're noticeably more or less successful or happy. Now, with that in mind, use the chart on the next page to evaluate their mindsets.

	Fixed Mindset	Combination	Growth Mindset
They say things that indicate a belief that needing to try hard on something is a sign of less talent or intelligence, or that "I can't do this" is a permanent state—vs. "I can't do this yet."	Often	Sometimes	Rarely
They're easily discouraged by critical feedback, and see it as a sign of failure. They respond to critical feedback by stopping or avoiding work—rather than by taking action to improve.	Often	Sometimes	Rarely
They prefer working on easier versus harder things because it makes them feel smarter.	Often	Sometimes	Rarely
They have uneven progress in different subjects—for example they're very far behind or ahead in one subject —suggesting that they mostly work on subjects that feel easier.	Mostly true	Somewhat true	Not true

3 Compare the outcomes. It's important to understand what kind of mindset they demonstrate in each situation. How do different situations compare? To what extent does the environment support a growth mindset?

Now, you are probably wondering, **"How do I foster a growth mindset where it's missing?"** Wouldn't it be great if we could just say, "This year you're going to have a growth mindset!" and it will be so?

If only it were so easy!

Dweck acknowledged the temptation, but said, **"The path to a growth mindset is a journey, not a proclamation."**

Step 3: Start the journey to growth mindset.

You now understand what a growth mindset is, and you have a general idea of the kind of mindset your kid has in different contexts. The steps below will help you support them in developing the habit where it isn't currently present.

First, teach kids about the brain science behind growth mindset.

Don't just tell kids to have a growth mindset, or ask them to say they have one. Share the fact that brain science has proven that learning causes physical changes to our brains, and those changes can lead to further growth. Then, let kids make their own decisions. You haven't told them what to believe—you've shown them the science.

Try this: Have a conversation with your kids about talent and ability. Do they think people either have it or don't? What attributes do they think are important for success? Then, have them read this "Introduction to Brainology" from www.mindsetkit.org. When they're finished, return to the earlier conversation. Ask them to apply what they learned to their ideas on talent and ability. Has anything changed?

The term **neuroplasticity** refers to the brain's ability to change its structure in response to experience throughout an individual's life. Neuroplasticity provides the science underpinning the growth mindset.

Next, revisit the way you offer feedback and encouragement.

Emphasize the process of learning, so that when kids reach the moment of struggle, they're able to rely on what they know to be effective—the process of learning—to help them push through challenges.

Praise Success

- **Do say:** "Great job! You worked so hard at this!"
- **Do say:** "I can see the improvement in your work since _____."

- **Don't say:** You're so good at this!
- **Don't say:** I told you you were smart!

Offer Encouragement

- **Do say**: "Just because this is hard doesn't mean you can't do it; it just means you're learning. Keep working and the connections in your brain will get stronger."

- **Don't say:** Not everyone is good at this. Just try to get it done on time.
- **Don't say:** Don't worry—you're good at other things.

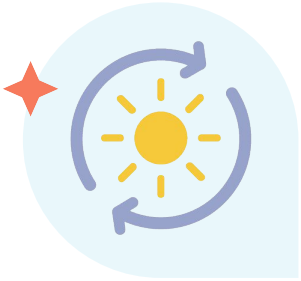
Provide Critical Feedback

- **Do say**: "I believe you can reach that goal, but you're not there yet. Let's think about strategies to help you get there. "

- **Don't say:** I guess you're just not as good at this thing. But you're good at that thing!

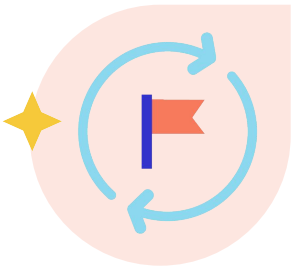
Lastly, encourage transfer from one situation to another.

Remind kids of other situations in which they demonstrated a growth mindset to overcome challenges. Prompt them to think about how they used that belief in themselves in a different way. For example, you might say, "Yes, you're struggling with this new type of math problem, but think about when you were trying to learn that new dance move. You kept at it and used different strategies. How can you do something similar here?"



Remind kids of the **five power behaviors** we described in an earlier ***Grow***. These behaviors can help them continue making progress in challenging situations. Having multiple strategies nurtures a growth mindset as well!

A HABIT OF SUCCESS:



Growth Mindset

Believing that abilities and knowledge grow and evolve with effort and support over time.

What It Looks Like

- Try more than one approach and/or attempt the same task, sometimes involving a sense of struggle.
- Use my existing and newly discovered resources to re-engage with a task.
- Shift thoughts from “I can’t” to “I can”. For example,“I will be able to when...”. Have an “I can” or an “I will be able to when...” mentality.
- Show patience in the face of a challenging task.
- Focus on mastering new learning and taking on challenges rather than on performing well, or fearing looking bad, or worrying about risks or setbacks.

For Example, a Kid...

- ... seeks out the support of a teacher when they are struggling with a math problem to overcome lack of understanding.
- ... approaches their soccer coach to work on defense footwork that has been a challenge.
- ... tries using a new note taking application on their laptop to see if this helps them capture more information during a science class.

Recognize Progress and Achievement During the Previous Month of Learning

What will I get from this?	How much time do I need?
A celebration agenda and strategies for offering praise	20 min. per kid at the end of the month

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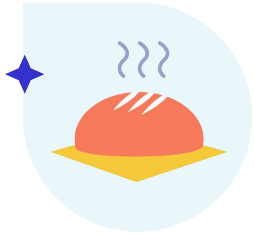
celebrate



Hooray—let's celebrate!

A **celebration of learning** is an opportunity to tune into kids' learning in deeper, more substantive ways. The celebration lets kids take center stage to showcase their work and accomplishments and to become more comfortable presenting in front of others.

The process links **Habits of Success** and **Universal Skills** with academic achievements, and it lets kids share their success with the people who matter most in their lives, highlighting the importance of community and relationships in learning.

When we **celebrate the process** of learning—interests, struggles, and all—we **honor our kids' progress, not perfection**.

During the celebration of learning, be strategic in offering praise to emphasize a kid's process (e.g., "You looked for creative solutions") rather than fixed personal attributes (e.g., "You're so creative."). This shifted emphasis contributes to a **Growth Mindset.**

Praise Tip #1: ***Highlight kids' use of strategies and resourcefulness.*** For example, "You did a great job finding sources and digging deeper into the material."

Praise Tip #2: ***Emphasize kids' persistence and the joy of succeeding at challenging tasks.*** For example, "I know that was difficult, but you stuck with it to figure out how to make it work. Well done." "It's awesome that you used what you learned from unsuccessful attempts to find a way forward. That must have felt great."

Praise Tip #3: ***The more process-related praise you can give, the better.*** Don't give up on your own growth as a learning leader if you lapse into praising the person over the process. Your effort matters, and as with any skill, practice will lead to progress!

Adapted from "Praise that Makes Learners More Resilient," by Allison Master.

How do you plan a Celebration of Learning?

1 Plan the event.

Save the date and announce the event—simple!

2 Prepare your kids.

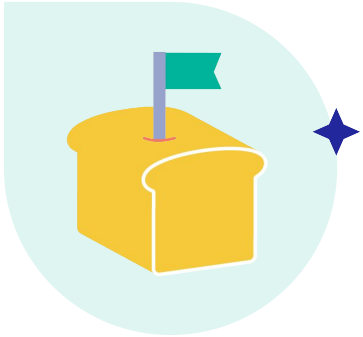
Preparation is as important as the celebration itself.

- **Explain the celebration.** Describe the process and ask what kids would like to present in their celebration of learning.
- **Learn!** Lead your kids through the month. We recommend doing the project in ***Learn***, but you can celebrate all kinds of growth.
- **Facilitate reflection.** When the month is complete, invite your kids to reflect. The project's Learning Support Tools offer project reflection questions!

Reflection should focus on growth in learning and in habits. This month's ***Grow*** is all about the **Growth Mindset**, a Habit of Success that can impact every aspect of a kid's life. Encourage kids to reflect on their ability to use a Growth Mindset in different contexts (for example, with time management *vs.* reading comprehension) to help them recognize that habits themselves can be improved.

3 Practice.

Before the actual celebration, kids should practice presenting, using the sample agenda below. **Provide feedback on that practice** to help kids think about how they can improve their presentation for the celebration.



4 Celebrate.

It's time!

Your Celebration Agenda!

Welcome and Introductions

Leader: Welcome the audience and explain the event. (3–5 min.)

- **Describe** the purpose of the celebration of learning.
- **Explain** the sequence of events.
- **Share** excitement about the kids' growth over the past month.
- **Introduce** kids as they take their turns presenting.

Student Presentations

Kids: Take your turn presenting your learning. (Time varies)

- **Describe** the project or this month's learning activity in your own words.
- **Present** your work on the ***Learn*** project or other activity.
- **Discuss** your reflections to share what you've learned about yourself, others, the topic, and the world around you.
- **Express** thanks to the audience and anyone who helped you in your learning journey this month.
- **Answer** questions from the audience.
- **Ask** for feedback to help improve your work in the future.

Conclusion

Leader: Wrap things up! (3–5 min.)

- **Congratulate** kids, and thank them for their informative presentations and dedication to growth and learning.

After

All: Reflect on the celebration and audience feedback. (5–10 min.)

- **Think** about how you will use what you learned today to improve future goal setting, learning experiences, and celebrations of learning.