

Grade 1: Module 3: Labs

3 – Extend Stage

Labs: Extend Stage

Days 11–22

Labs continue to take place in four stages, and the purposes of each remain the same (see Module 2 Extend stage).

What stays the same from previous stage(s):

- During the Extend stage, the guiding questions remain the same as in previous stages.
- During the Extend stage, students continue to visit two labs per day.

What is different from previous stage(s):

- The Extend stage begins with two “transition days.” These days—described briefly at the beginning of each In the Lab section—give teachers time with their whole class to introduce new materials, introduce new layers of complexity to the task, model various Lab skills and behaviors, and clear up any confusion before students return to a more independent Lab experience.
- During the Extend stage, the learning targets change to reflect students’ work in the labs.
- During the Extend stage, students are given a greater variety of materials.



Extend Stage: At-a-Glance

Guiding Question

Create Lab

How can I create a sculpture of a bird that shows the form and function of its body parts?

Engineer Lab

How can I use my knowledge of birds to design a solution to a human problem?

Explore Lab

How can I learn more about birds by exploring the properties of different bird parts?

Imagine Lab

How can I use poetry and movement to learn more about birds?

Learning Target(s)

Create Lab

I can create a complete sculpture of a mallard duck.

Engineer Lab

I can design a solution to a human problem based on a birds' feathers and their function.

Explore Lab

I can complete a series of beak challenges to learn more about birds' beaks.

Imagine Lab

I can build knowledge about birds through poetry.

I can improve my reading fluency by reading poetry aloud.

I can create movement to match poetry about birds.

Ongoing Assessment

Create Lab

Create Lab Checklist (SL.1.1, SL.1.3, SL.1.4, SL.1.6)

Engineer Lab

Engineer Lab Checklist (SL.1.1, SL.1.5, SL.1.6)

Explore Lab

Explore Lab Checklist (SL.1.1, SL.1.4, SL.1.6)

Imagine Lab

Imagine Lab Checklist (RL.1.4, RF.1.4b, SL.1.1, SL.1.6)

The daily schedule remains the same across the Practice and Extend stages (see Practice stage).

Extend Stage: Storytime

10 MINUTES

Teaching Notes**Purpose:**

- Review the Storytime Teaching Notes in the Launch and Practice stage documents as needed.

In advance:

- Choose a text from your classroom library or the Grade 1: Labs Recommended Storytime and Research Book List (in the Labs Teacher Guide)
- Consider creating a focus question for Storytime (see example in the Experience section below).
- Post: Focus question (optional).

Materials

- ✓ Labs song (one to display)
- ✓ Text for Storytime (chosen by teacher; see Teaching Notes)

Experience

- Follow the routine established in Modules 1–2 to engage students with the **Labs song** and **text for Storytime**.

Extend Stage: Setting Lab Goals

5 MINUTES

Teaching Notes

Purpose:

- Recall that Setting Lab Goals is a time for students to activate and reinforce executive functioning skills by focusing their attention, making a plan for their time, exhibiting self-regulation, and following instructions.

Logistics:

- During the Extend stage, Lab groups visit two labs for 20 minutes each.
- On the “Transitioning to the Extend Stage” day, students’ goals will be based on their knowledge of the labs thus far. In subsequent days, students’ goals can be more finely tuned to the learning targets, materials, and habits of character unique to the Extend stage.

In advance:

- Post: Guiding question for each Literacy Lab, learning target(s) for each Literacy Lab, and Labs schedule.

Materials

- ✓ Learning target(s) (one to display for each Lab; see Practice Stage: At-a-Glance for the specific target(s) for each Lab)
- ✓ Labs schedule (one to display)

Experience

- Tell students that today they will visit two labs.
- Review the **learning target(s)** and **Labs schedule** with students.
- Invite students to open their **Labs notebook** and follow the routine established in Modules 1–2 to guide them through setting goals:
 - Review the sentence starters at the top of the page.
 - Invite students to notice what Lab they will visit first and second and to make a goal for each Lab.
 - Direct students to record their goals for the day in their **Labs notebook** using a **pencil**.
- Invite students to put on their imaginary lab coats and goggles to show they are ready for learning and fun!

Extend Stage: In the Labs**40 MINUTES**

- Refer to the In the Labs section below for detailed plans on each specific Lab.

Extend Stage: Reflecting on Learning**5 MINUTES****Teaching Notes****Purpose:**

- Similar to Modules 1–2, the cycle of goal-setting and reflecting is meant to increase student ownership and intentionality. Continue to support students with predictable structures of reflection and familiar sentence frames.

In advance:

- Post: Sentence frames or picture clues for any reflection questions you will use regularly (optional).

Materials

- ✓ Labs song (one to display)
- ✓ Learning target(s) (one to display for each Lab; see Practice Stage: At-a-Glance for the specific target(s) for each Lab)

Experience

- Gather students back together whole group by singing the (conclusion of) the **Labs song**.
- Remind students of the **learning target(s)** for their labs and guide them through their reflection:
 - Invite students to review their goal in their **Labs notebook**.
 - Ask a reflective question and remind students of the sentence starters at the top of the page.
 - Invite students to signal and share with a partner when they are ready.
 - Invite students to record their reflection in their Labs notebook using a **pencil**.
- Invite students to give a neighbor a high-five and take off their imaginary Lab coat and goggles to indicate the end of the Lab experience.



Extend Stage: In the Create Lab

Guiding Question

- How can I create a sculpture of a bird that shows the form and function of its body parts?

Learning Target

- I can create a complete sculpture of a mallard duck.

Teaching Notes

How this stage of this Lab builds on previous stage(s):

- Students continue to create paper collages by cutting or tearing, gluing, and layering onto a template.

What is new about this stage of this Lab:

- Students apply their knowledge of sculpting separate body parts as they complete a sculpture of a whole mallard duck.

Logistics:

- Similar to Module 2, on the first day, students work as a whole class to transition to the Extend stage. During the remaining days, they spend 20 minutes each in two labs with their Lab groups.

In advance:

- Prepare:
 - Four clay mallard duck parts to model how to best attach pieces of clay together.
 - New photographs of mallard ducks (see supporting materials).

Materials

Continued materials:

- ☑ Toothpicks (one per student and one for teacher modeling)
- ☑ Air-dry clay (class set; 10 pounds in the Create Lab)
- ☑ Cup of water (one to share and one for teacher modeling)
- ☑ Plastic forks (one per student)
- ☑ Plastic knives (one per student)

Additional materials:

- ☑ Clay mallard duck parts (four for teacher modeling)
- ☑ Photographs of whole mallard ducks (several in the Create Lab)
- ☑ Plastic bags (one gallon; air tight; one per student)

Experience

Transitioning to the Extend Stage (Whole Class):

- Gather students whole group and give them specific, positive feedback regarding their sculpting of the different parts of a mallard duck.
- Tell students that they will continue to build their sculpting skills, specifically sculpting mallard ducks.
- Tell students that now, because they have built such great sculpting skills, they will be sculpting the whole mallard duck.
- Using a total participation technique, invite responses from the group:

“How will creating a whole mallard duck, as opposed to parts of a mallard duck, make this challenge more difficult?” (Guide students toward the idea that connecting pieces of clay together, and keeping those parts together, is a new challenge for them as sculptors.)

- Display the two **clay mallard duck parts**.
- Tell students that there are two ways to connect clay parts in order to create a complete sculpture:
 - You could use a **toothpick**, pressed inside each of the two connecting parts.
 - Model this process.
 - You could also press one part on to the other, and then, using wet fingers, push and smooth the two pieces securely together.
 - Model this process.
- Tell students that over the next days, they will be working on sculpting and perfecting a sculpture of a full mallard duck.
- They will continue to have the use of the **continued materials** of the Launch and Practice stages.
- Tell them that to help them, they will now have new **photographs of whole mallard ducks**. They should refer to these pictures throughout the process in order to see and include accurate shapes and details.
- Tell them that they also will use **plastic bags** to store their sculptures. Because the sculptures will be made over several visits to the Create Lab, they must be kept in air-tight containers so they do not dry out.

Remaining Days of the Extend Stage:

- Invite students to begin working.
- Circulate and support them as they work.
- If students feel they are finished with one collage, they may put it away in the designated storage space and begin a new one.
- At the conclusion of In the Lab time, signal students to clean up their Lab space.
- As Lab groups are ready, transition them back to the whole group area for Reflecting on Learning.



Extend Stage: In the Engineer Lab

Guiding Question

- How can I use my knowledge of birds to design a solution to a human problem?

Learning Target

- I can design a solution to a human problem based on a birds' feathers and their function.

Teaching Notes

How this stage of this Lab builds on previous stage(s):

- During the Launch and Practice stages, students built their knowledge of biomimicry, or the design of solutions to human problems inspired by the natural world. Students will continue to build upon, and apply, this knowledge during the Extend stage in the Engineer Lab.
- The Engineer Lab connects to Next Generation Science Standard 1-LS1-1. Students focus on the following science and engineering practice: Use materials to design a device that solves a specific problem or a solution to a specific problem. Students focus on the following cross-cutting concept: Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.

What is new about this stage:

- During the Extend stage in the Engineer Lab, students use birds' bodies, specifically their feathers, as inspiration in designing a solution to a human problem.

Logistics:

- Similar to Module 2, on the first day, students work as a whole class to transition to the Extend stage. During the remaining days, they spend 20 minutes each in two labs with their Lab groups.
- Teacher and students begin by reviewing the properties of birds' feathers and how birds' feathers function to benefit birds (background knowledge learned in module lessons) Students then work in pairs to imagine ways in which human problems might be solved by applying those properties to their own designs.

In advance:

- Create supportive partnerships within Lab groups.
- Post: Feathers: Class Notes (completed in 1M3.2L3).

Materials

Additional materials:

- ☑ Feathers: Class Notes (completed in 1M3.2L3)
- ☑ Labs notebook (one per student and one for teacher modeling)
- ☑ Pencils (one per student)

Experience

- Welcome students to the Engineer Lab.
- Remind students of the guiding question:
 - “How can I use my knowledge of birds to design a solution to a human problem?”
- Remind students that during the Launch and Practice stages in the Engineer Lab, they saw examples of how other inventors used the natural world to create new inventions that helped solve human problems or improve people’s lives.
- Tell students that now they get to be the inventors! They will use the knowledge about birds and birds’ bodies that they have collected to inspire them as engineers and designers.
- Direct students’ attention to the **Feathers: Class Notes**. Remind students that this chart should look familiar because it is all of the information they have been collecting during the module lessons.
- Turn and Talk:

“What important facts have we learned about feathers?” (They are waterproof. They are camouflaged. They help the birds slide on ice and snow.)
- Point out the line of notes that says feathers can trap air inside, between the feathers and the bird’s body, helping birds to float.
- Tell students that in this design process, it will be helpful to first consider how birds’ bodies have adapted to help them survive, and then try to think of ways that their bodies’ designs can help people.
- Turn and Talk:

“What is a human problem that could be solved by floating?” (Responses will vary, but may include: People sinking in water when they want to float. Kids sinking in water when they don’t know how to swim. Losing objects, such as keys or telephones, in water.)

“How can this knowledge—that birds’ feathers can trap air between the feathers and birds’ bodies to help them float—help us design a solution to one of these human problems? (Responses will vary, but may include: We could design a float for people to lie on. We could design a bathing suit for kids or babies to keep them safe in the water. We could design a device to store keys or telephones when people are near water.)
- Display the “Birds’ Feathers Design Process” page of the **Labs notebook**.
- Tell students that their design process will be to “Plan, Do, Review.” (Consider displaying for students the page of their Labs notebook that outlines this process.)
 1. Plan: Think about your ideas, discuss your ideas with your partner, make a drawing of your idea.
 2. Do: Build a model of your design and test it out.
 3. Review: Reflect on your idea and think of how you can make it better.
- Tell students that during this stage, they will only be in the planning phase of the design process. If they choose the Engineer Lab during the Choice and Challenge stage, they will complete the other steps.

- Using one of the ideas generated in the discussion with students, model how to complete the “Plan” part of the design process with a partner in the Labs notebook.
 - Name one property of birds’ feathers from which you will draw inspiration (waterproof, camouflaged, etc.).
 - Identify a way in which this property could be helpful to people.
 - Make a drawing (preferably labeled) of an invention that could solve a human problem.
- Move students into pre-determined pairs. Remind them to use the Feathers: Class Notes as a starting place for ideas.
- Tell them they will have today and the rest of the Extend stage, so they should plan several ideas based on the different properties and functions of feathers.
- Invite students to begin planning their ideas with their design partners.
- Circulate and support students as they work, encouraging them to persevere.
- At the conclusion of In the Lab time, signal students to clean up their Lab space.
- Give students specific, positive feedback for their productive collaboration with their partners, and also their responsible and respectful cleanup behaviors.
- As Lab groups are ready, transition them back to the whole group area for Reflecting on Learning.



Extend Stage: In the Explore Lab

Guiding Question

- How can I learn more about birds by exploring the properties of different bird parts?

Learning Target

- I can complete a series of beak challenges to learn more about birds’ beaks.

Teaching Notes

How this stage of this Lab builds on previous stage(s):

- Students continue to explore the properties of birds’ body parts by engaging in a variety of challenges related to those body parts.

What is new about this stage of this Lab:

- During the Extend stage of the Explore Lab, students engage in a series of challenges related to beaks. Specifically, they explore which beak “is best for the job” when accessing and collecting different types of food.

Habits of character:

- Students are working in groups of three to complete these challenges, and each student has a specific job to do for each challenge. To be successful in this, students will need to show a great deal of collaboration. Students will also be working with a variety of materials. Therefore, respectful care of those materials and respectful cleanup of the Lab space should be modeled, reinforced, and congratulated when done appropriately.

Logistics:

- Similar to Module 2, on the first day, students work as a whole class to transition to the Extend stage. Students are introduced to the four challenges of this Lab. During the remaining days, they spend 20 minutes each in two labs with their Lab groups.

In advance:

- Gather the simulated bird foods:
 - Sunflower seeds in the shell (five seeds per student in one or two cups to share).
 - Gummy worms (20 to share).
 - Styrofoam cubes (various sizes ranging from 1-inch cube to 3-inch cubes; 20 to share)
 - Colored water (two or three cups to share; the color will help students more easily see and track the amount of water; used by students to fill graduated cylinders)
- Gather the simulated bird beaks:
 - Tweezers (one pair to share)
 - Spoon (slotted; one to share)
 - Chopsticks (one set to share)
 - Straw (one to share)
 - Eyedropper (one to share)
- Prepare the Explore Lab by:
 - Setting up each challenge with the necessary supplies. Place the soil in the large mixing bowl and then mix the gummy worms throughout. Fill one graduated cylinder halfway to three-quarters of the way full with colored water. Fill plastic container halfway with water and place Styrofoam cubes inside.)
 - Consider labeling each challenge for ease of use by students (e.g., A, B, C).
 - Creating supportive triads within Lab groups.

Materials**Continued materials:**

- ☑ Labs notebook (one per student and one for teacher modeling)

Additional materials:

- ☑ Simulated bird beak materials (see Teaching Notes)
- ☑ Simulated bird food materials (see Teaching Notes)
- ☑ Soil (approximately 5 quarts)
- ☑ Mixing bowl (5 quarts; one to share)
- ☑ Plastic container (5 quarts; one to share)
- ☑ Cylinder vases or graduated cylinders (two to share)
- ☑ Timer (two to share)

Experience

Transitioning to the Extend Stage (Whole Class):

- Share that the biggest differences between the Practice stage and Extend stage for the Explore Lab are the new challenges they will work through and the bird body part they will explore.
 - Remind students that during the Launch and Practice stages, they were learning more about the bones of birds by exploring hollow materials and structures.
 - During the Extend stage, they will be exploring a new bird body part: beaks!
 - Tell students they will now be exploring and learning about beaks.
- Using a total participation technique, invite responses from the group:
 - “For what do birds use their beaks?” (Responses will vary, but may include: for picking up objects, for picking up food, for eating.)*
 - “What are some different types of beaks that birds have?” (Responses will vary, but may include: long, thin beaks, sturdy beaks, short, cone-shaped beaks, pouch beaks, etc.)*
- Tell students that they will use a variety of tools, or “beaks,” to complete these challenges.
- Show students the **simulated bird beaks** they will use in this challenge.
- Using a total participation technique, invite responses from the group:
 - “What do you notice about these ‘beaks?’” (Responses will vary.)*
 - “How are they similar?” (Responses will vary.)*
 - “How are they different?” (Responses will vary.)*
- Remind students that birds’ beaks are specially formed to complete different jobs. These tools are meant to act like some of the beaks students have been learning about.
- Display the first page of the Beak Challenge section of the **Labs notebook**.
- Review one page of the Beak Challenge section to familiarize students with the structure of the note taker and the expectations of the recording form.
- Tell students that in the following days they will be working in groups of three. Each person in their group will have a job:
 1. A timer — To use the timer and see how many seconds the doer needs to finish the challenge.
 2. A recorder — To write down the information in their Labs notebook, so their teammates can transfer that information into their own notebooks.
 3. A doer — The person completing the challenge.
- Tell students that between each challenge, they should change jobs, giving each person a chance to do each job. Challenges can be completed more than once, if time permits.
- Choose one challenge to model and two students to work alongside you.
 - Display and review the materials necessary to complete the challenge.
 - Model the challenge for all students to see.
- After modeling a single challenge completely, briefly introduce and review the remaining challenges, including introducing students to the materials of each challenge: **simulated bird foods, soil, mixing bowl, plastic container, cylinder vases or graduated cylinders, and timers**.

Remaining Days of the Extend Stage:

- Invite students to begin exploring.
- Circulate and support students as they work. Reinforce the habit of respect as needed.
- At the conclusion of In the Lab time, signal students to clean up their Lab space.
- Give Lab groups or individual students specific, positive feedback for responsible and respectful cleanup behaviors.
- As Lab groups are ready, transition them back to the whole group area for Reflecting on Learning.
- As students arrive to the whole group, invite them to provide positive feedback to as many of their peers as they can for 15–30 seconds before being seated. Model an example as necessary: “I’m proud of how you showed respect by sharing the beak tools! Great work sharing the roles of doer, timekeeper and recorder!”

**Extend Stage: In the Imagine Lab****Guiding Question**

- How can I use poetry and movement to learn more about birds?

Learning Targets

- I can build knowledge about birds through poetry.
- I can improve my reading fluency by reading poetry aloud.
- I can create movement to match poetry about birds.

Teaching Notes**How this stage of this Lab builds on previous stage(s):**

- Students continue to:
 - Build their understanding of birds through poetry and movement.
 - Use movement to show their understanding of birds and the poetry about birds.
 - Build reading fluency through the practice of reading poetry, reading aloud, and repeating readings of an increasingly familiar text.

What is new about this stage of this Lab:

- N/A

Habits of character:

- Collaboration and respect continue to be a key to the success of this Lab. Students use collaboration to plan and execute movement based on their knowledge of birds and poetry about birds. Students productively negotiate with one another as they decide which poems to create movements for, how best to create that movement, and how to take turns. Respect is central to the way they make decisions and handle and organize Imagine Lab materials.

Logistics:

- Similar to the Launch and Practice stages, students visit the Imagine Lab with their Lab group to decide on the poem to create movement for and choose materials.

In advance:

- Prepare the Imagine Lab space with the imaginative play materials from Modules 1–2 (e.g., building blocks, white boards, puppets, dress-up materials).

Materials

Continued materials:

- ✓ Poems about birds (from Launch stage; several in the Imagine Lab)
- ✓ Imaginative play materials (variety from Modules 1–2)

Experience

Transitioning to the Extend Stage (Whole Class):

- Welcome students to the Imagine Lab.
- Remind them of the primary goal of the Imagine Lab: to work together and use **poems about birds**, their knowledge of bird behaviors, their own bodies, and **imaginative play materials** to create movement that represents different birds and poems about birds.
- Invite students to begin imagining.
- Circulate and support them as they work.
- When visiting the Imagine Lab, offer students concrete strategies for working positively and collaboratively with others, specifically providing language that creates a collaborative experience.
- At the conclusion of In the Lab time, signal students to clean up their Lab space.
- As Lab groups are ready, transition them back to the whole group area for Reflecting on Learning.