

Kindergarten: Module 3: Labs

1 – Launch Stage

Labs: Launch Stage

Days 1–4

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

1. The Launch stage serves four purposes:
 - To introduce and practice the Labs schedule and routines and lay the groundwork for the habits of character that students will practice in each Lab.
 - To orient students to the purpose, guiding questions, and materials of each of the Labs for this module.
 - To establish expectations for each Lab.
 - To build a sense of wonder and excitement around each Lab. Students should be filled with anticipation, questions, and ideas as they continue on to the following, more independent stages of the Labs.



Launch Stage: At-a-Glance

Guiding Question

Create Lab

How can I create a collage that shows multiple parts of a plant?

Explore Lab

How can I use the skills of a plant scientist to learn about plants?

Imagine Lab

How can I use movement to better understand living things?

Engineer Lab

How can I create a storyboard that shows the life of a plant?

Learning Target(s)

Create Lab

I can create collages of leaves.

Explore Lab

I can use my senses to learn about plants.

I can use the tools of a plant scientist to learn about plants.

Imagine Lab

I can use movement to represent plants as living things.

Engineer Lab

I can sketch a stage of plant growth.

Create Lab

Create Lab Checklist (SL.K.1a, SL.K.1b, SL.K.3, SL.K.6)

Explore Lab

Explore Lab Checklist (SL.K.1a, SL.K.1b, SL.K.3, SL.K.6)

Imagine Lab

Imagine Lab Checklist (SL.K.1a, SL.K.1b, SL.K.3, SL.K.6)

Engineer Lab

Engineer Lab Checklist (W.K.2, W.K.8, SL.K.1a, SL.K.1b, SL.K.3)

Launch Stage: Daily Schedule

Lab Component	Time
Storytime	10 minutes
Setting Lab Goals	5 minutes
In the Lab	40 minutes
Reflecting on Learning	5 minutes

Launch Stage: Storytime



Teaching Notes

Purpose:

- Recall that the purpose and structure of Storytime is identical across all four stages of the Labs and can include a read-aloud of a text or an oral storytelling experience.
- During the Launch and Practice stages, Storytime should be dedicated to reading, rereading, or retelling narratives about a variety of living things, especially those introduced during the module lessons, but it can also include others of the teacher's choice.

In advance:

- Choose a text from your classroom library or the Grade K: Labs Recommended Storytime and Research Book List (in the Labs Teacher Guide)
- Consider creating a focus question for Storytime (see examples in Modules 1 and 2).
- Create four heterogeneous Lab groups.
- Post: Focus question (optional).

Materials

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

Experience (identical during all four stages of Labs)

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

Launch Stage: Setting Lab Goals**5 MINUTES****Teaching Notes****Purpose:**

- Recall that Setting Lab Goals is a time to activate and reinforce students' executive functioning skills: focusing their attention, making a plan for their time, exhibiting self-regulation, and following instructions.
- Continue to consider using visual displays (anchor charts, a Labs schedule, a daily agenda, etc.) to support students in understanding and remembering where they are going that day and what is expected of them.

In advance:

- Post: Guiding question and learning target(s) for the Lab students will launch that day.

Materials

- ☑ Learning target(s) (one to display for each Lab; see Launch Stage: At-a-Glance for the specific targets for each Lab)

Experience

- Gather students in the whole group meeting area.
- Invite students to sit in specified places so they will be close to their Lab group.
- Briefly introduce the Lab that the class will launch today.
- Think-Pair-Share:
 - “What do you already know about the Lab based on your experiences in Modules 1–2?”***
 - (Responses will vary.)***
- Share the learning target(s) for the Lab the class is focused on today.
- Turn and Talk:
 - “What do you think you will be doing in today’s Lab?”***
 - “How can you show respect for materials?”***
 - “How can you show respect for other students in your group?”***

- Tell students that their most important goals for the day are to think about the learning target, show respect for materials, show respect for other students in their group, and have fun!
- Invite students to put on their imaginary lab coats and goggles to show they are ready for learning and fun!

Launch Stage: In the Labs

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

Launch Stage: Reflecting on Learning

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)

Experience

- Gather students whole group by singing the (conclusion of) the **Labs song**.
- Remind students of the guiding question for the specific Lab the class focused on today and guide them through their reflection:
 - Ask a reflective question.
 - Invite students to use a silent signal to indicate when they are ready to share.
 - Invite students to share with a partner, a small group, or the whole class, as time permits.
- Continue to reinforce specificity in students' responses (e.g., referring back to their goal, referring back to the learning target(s), giving concrete examples, etc.).



Launch Stage: In the Create Lab

Guiding Question

- How can I create a collage that shows multiple parts of a plant?

Learning Target

- I can create collages of leaves.

Teaching Notes

Purpose:

- In the Create Lab, the Launch stage continues to serve two purposes:
 - Students closely examine the art of collage and practice collaging a leaf of their choice.
 - Students explore how to create the various shapes and textures by tearing, cutting, and layering construction paper onto a template.

Habits of character:

- Similar to Modules 1–2, the Create Lab requires perseverance from students in different ways. For some, the process can be frustrating when their artwork does not match the model or does not meet their own expectations. Guide these students toward the understanding that mastery of skills and materials is a long-term process and that making multiple attempts is a productive and natural part of the process. Other students will feel “done” with their first attempt. Perseverance will be necessary for these students when provided with descriptive feedback and encouraged to make additional drafts to improve their work.

Logistics:

- During the Launch stage of the Create Lab, the teacher and students work together to examine an example paper collage. They discuss what is unique about collage as an art form and define it. Then, students explore how to create their own paper collages by tearing, cutting, and layering paper onto a leaf template.
- The teacher models for students how construction paper can be cut or torn, glued onto the template with a glue stick, and layered to create a paper collage.
- Students then explore cutting, tearing, and layering paper to create their own leaf collages.

In advance:

- Create a leaf collage of your own to use as the model of paper collage.
- Based on classroom setup and available technology, determine the best way to display the collage model and how to model cutting, tearing, gluing, and layering so all students can observe the process.
- Prepare four workstations by placing leaf templates, construction paper, scissors, and glue sticks at each workstation.

- Consider:
 - Showing illustrations created by collage from various children's books as alternative models.
 - Having a folder for each student's work in progress and leftover materials.
 - Forming new Lab groups based on students' progress, strengths, and needs as exhibited in the Module 2 Labs.

Materials

- ✓ Paper collage: teacher model #1 (new; teacher-created; see Teaching Notes)
- ✓ Leaf templates (one set for teacher modeling and one set per workstation)
- ✓ Leaf images (one set for teacher modeling and one set per workstation)
- ✓ Construction paper (shades of green; for teacher modeling and one small pile per workstation)
- ✓ Scissors (one pair for teacher modeling and one pair per student)
- ✓ Glue sticks (one for teacher modeling and one per student)

Experience

- Gather students in the whole group meeting area.
- Welcome students to the Create Lab, where they will now be paper collage artists!
- Display the **paper collage: teacher model #1**.
- Using a total participation technique, invite responses from the group:
 - “What do you notice about this piece of art?” (It is made of different pieces of paper. It has layers.)*
 - “How do you think the artist made it?” (by gluing lots of pieces of paper on top of each other)*
 - “What is depicted in this paper collage? How do you know?” (a leaf; because it is green and I can see the edges form the shape of a leaf)*
- Confirm for students that a collage is a type of artwork in which different kinds of materials are pasted onto a surface to make a picture. In a paper collage, the material that is pasted, or glued down, is paper.
- Tell students that in a paper collage, the artist uses many small pieces of cut or torn paper to cover all the white space underneath.
- Direct students' attention back to the paper collage model and invite them to look carefully at the layers of paper. Point out how each piece of paper is cut or torn very small and how you cannot see any white space between or underneath.
- Tell students that in the Create Lab, they will create their own paper leaf collages by tearing or cutting small pieces of paper and layering them.
- Show students the set of **leaf templates** and tell them that they will paste their collage paper to one of these templates.
- Display the **leaf images** and think aloud as you find the image that is the same type of leaf as the leaf template you selected. Direct students' attention to the shades of green in the image.
- Show students the **construction paper**.

- Using a total participation technique, invite responses from the group:
“What shades of green should I use to collage this leaf?” (Responses will vary depending on the selected leaf.)
- Confirm for students that the colors you will select should be as close to the colors in the leaf image as possible. Take the necessary colors from the construction paper at their workstation.
- Demonstrate how to create small pieces of paper to use for your collage by tearing and using **scissors**. Ask:
“When is it better to cut the paper? When is it better to tear the paper?” (Responses will vary, but may include: Cut it if you need an exact shape for an edge or corner of the leaf, but tear it if you plan to simply layer it and fill in a space.)
- Tell students that in the Create Lab, they will continue to develop their “Artist’s Toolbelt” begun in Modules 1–2.
 - Pretend to put on an imaginary toolbelt and invite students to dramatically do the same.
 - Tell students that the next tool they are adding to their belt is “layering.” Layering means to put things on top of one another.
 - Invite students to create a gesture or signal for the word “layering” (i.e., putting your hands one on top of the other).
 - Pretend to hold the idea of “layering” in your hand and add it to your toolbelt. Invite students to do the same.
- Demonstrate how to use the **glue stick** to glue down and layer the small pieces, covering all white space underneath. Tell students that when they layer to collage, they need to put the paper on top of other pieces to cover all of the white space.
- Involve students in the process of layering by asking them for advice on where to glue the next few pieces of construction paper.
- Using a total participation technique, invite responses from the group:
“Does this look like the leaf in the photograph? Why or why not?” (Responses will vary.)
“Do I need to add more layers? More of a certain shade of green?” (Responses will vary.)
- Reaffirm for students that layering is a process that takes time, patience, and perseverance. It is not something they will get right away, and they may be able to layer only on a small part of the template they are trying to create.
- Tell students that today their job is to experiment with layering and collage.
- They should:
 1. Select a leaf template for their collage (available at their workspace).
 2. Look closely and select the matching leaf image (available at their workspace).
 3. Select the shades of green they need to layer to make a paper collage of that leaf.
 4. Begin creating a paper collage by tearing and/or cutting small pieces of paper and layering them to cover the whole template.
- Tell them that each student will need only one leaf template, as they can use various colors of green to layer on top of it.
- Assign each Lab group a workspace and invite them to get started.

- Circulate and support students as they work. Encourage them in the process of tearing, cutting, and layering paper, of respectfully sharing materials with their Lab group, and of showing perseverance when they are having difficulty.
- At the conclusion of In the Lab time, signal students to clean up their Lab space. Cleaning up scraps of paper, glue sticks, scissors, and storing materials may need to be modeled the first time they do this.
- 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.



Launch Stage: In the Explore Lab

Guiding Question

- How can I use the skills of a plant scientist to learn about plants?

Learning Targets

- I can use my senses to learn about plants.
- I can use the tools of a plant scientist to learn about plants.

Teaching Notes

Purpose:

- In the Explore Lab, the Launch stage continues to serve two purposes:
 - Students are introduced to the purpose and materials of the Explore Lab.
 - Students engage in an exploration of plants, how they change and grow, and what they, as plant scientists, can do to help the growth of plants.

Habits of character:

- Similar to Modules 1–2, the Explore Lab makes use of a variety of materials, so respect will be central to students' success in multiple ways. First, students must learn and exhibit respect for materials as learning tools. Beginning with this “open exploration” time works toward this goal, as it gives students time to use the materials more like toys before creating more prescriptive, guided experiences. Additionally, students must learn and exhibit respect for one another by sharing materials and roles equitably.

Logistics:

- Teachers and students begin by examining the various materials that will be available in the Explore Lab and by setting expectations for the respectful care of those materials.
- Teachers set a purpose for the Explore Lab so students have a clear idea of how they should be spending their time.

- Students then work with their Lab groups in an open observation and exploration of parts of plants and the life cycle of a plant by exploring different workstations around the classroom.

In advance:

- Prepare workstations by placing at each one a plant from the class garden, a spray bottle of water, an eyedropper, a cup of water, and a ruler.
- Consider:
 - Forming new Lab groups based on students' progress, strengths, and needs as exhibited in the Module 2 Labs.

Materials

- ☑ Spray bottle of water (one per workstation)
- ☑ Eyedropper (one per workstation)
- ☑ Cup of water (one per workstation)
- ☑ Ruler (one per workstation)
- ☑ Plants (one per workstation)

Experience

- Gather students in the whole group meeting area.
- Welcome students to the Explore Lab!
- Display the following tools: **spray bottle, eye dropper, cup of water, and ruler.**
- Using a total participation technique, invite responses from the group:
 - “What do you know about these tools?” (Responses will vary, but may include: They are used to spray and drip water. The ruler helps you measure things.)***
 - “What could you use these tools to do?” (Responses will vary.)***
- Display a **plant** from the class garden.
- Using a total participation technique, invite responses from the group:
 - “How could we use these tools to study plants from our class garden?” (Responses will vary, but may include: water the plants, measure the height, put drops of water on the leaves)***
- Point out that students have these same materials at their workstations.
- Tell students that they will work with their Lab group at their workstation. They will need to share the materials, so being fair and taking turns with the materials will be important.
- Tell students that today their job is to be explorers of plants from the class garden and to use the tools to study what they need to grow and be healthy. Challenge them to discover all they can and be ready to share something they realized when they return to reflect on learning.
- Direct each Lab group to their workstation for the day.
- Invite students to begin working.
- Circulate and support students as they work, focusing on their sharing and caring for materials.

- As you visit workstations, guide students toward other challenges they might try out with the plants (e.g., preparing them for the Practice stage of the Explore Lab by prompting: “How many leaves have grown on your plant? How tall is it? What happens if you spray the plant? What happens if you release one eyedropper of water? What happens if you drop 10 eyedroppers of water?”)
- 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.



Launch Stage: In the Imagine Lab

Guiding Question

- How can I use movement to better understand living things?

Learning Target

- I can use movement to represent plants as living things.

Teaching Notes

Purpose:

- Similar to Modules 1–2, the Imagine Lab continues to provide students the time, space, and materials to create a world of imaginative play. Recall that guided play is most successful when students have greater ownership over the experience after the teacher has established the purpose and expectations.
- In this module, the Imagine Lab becomes a more guided experience, as students use movement to represent what they learn about living things.

Habits of character:

- Similar to Modules 1–2, students continue to collaborate to create imaginative scenes. As needed, remind them of specific strategies and rationale for planning and executing a fair, shared experience.

Logistics:

- Similar to Modules 1–2, the teacher and students discuss how the new Imagine Lab material—plant masks—might be used. Students then transition to their workstation to explore the material with their Lab group.

In advance:

- Create a model of a plant mask using an index card and sentence strip (see supporting materials).

- Consider:
 - Creating a variety of plant masks in advance if students have trouble thinking of different plants they could represent.
 - Forming new Lab groups based on students' progress, strengths, and needs as exhibited in the Module 2 Labs.
- Prepare four workstations, each with a different type of imaginative play material (see Modules 1–2).

Materials

- ☑ Plant mask (one for teacher modeling)
- ☑ Index cards (one per student)
- ☑ Crayons (class set; variety of colors per workstation)
- ☑ Sentence strips (one per student)
- ☑ Stapler (one; used by the teacher to staple the sentence strips)

Experience

- Welcome students to the Imagine Lab!
- Using a total participation technique, invite responses from the group:

“Of all the things you have done in the Imagine Lab, what has been your favorite so far?” (Responses will vary.)
- Give students specific, positive feedback about the time they have spent in the Imagine Lab already this year.
- Tell them that they will continue to use all those great Imagine Lab materials, including their imaginations.
- Say: “I think that, because you have been so successful in the Imagine Lab, it is time for a new challenge! Do you agree? I have been loving all the different living things we have learned about. It would be fun to imagine what it’s like to be different living things!”
- Turn and Talk:

“If you could be a different living thing, what would you be? Why?” (Responses will vary.)
- Select volunteers to share out.
- Tell students that, although they cannot actually be a different living thing, they can do something just as good: They can use their imagination to pretend to be different living things in their own classroom!
- Share with students that they will use all the great materials in the Imagine Lab and their wonderful imaginations to work with their Lab groups to bring different living things into the classroom by creating masks, building the sets, dressing up, and pretending to be the living things.
- Tell students that the challenge of this Lab will be to use their bodies to move like different living things. With excitement, share that they will begin by using their imaginations and bodies to move like plants.

- Display the **plant mask** and walk students through the process you used to create it.
 - Share how you thought of a plant you wanted to imagine being.
 - Share that you then drew it on the **index card** using **crayons**.
 - Show how you **stapled** the card to the **sentence strip**.
 - Show how you measured the sentence strip to fit your head and then stapled the ends together.
- Point out that, with the exception of the stapler, students have these same materials at their workstations. Remind students that the stapler is a tool that only adults can use.
- Place the plant mask on your head and model moving your body to act like that plant (e.g., for a tree you might stand with firm feet as roots and spread your arms wide and high as the branches).
- Using a total participation technique, invite responses from the group:

“What are some other plants we could pretend to be?” (Responses will vary, but may include: sunflower, daisy, blueberry bush, palm tree, grass, carrot, etc.)
- Tell students that at their workstations, they will each design a plant mask and practice moving their bodies like that plant.
- Transition students to their workstations.
- Circulate and support students as they work, focusing on their sharing and caring for materials.
- As you visit workstations, guide students toward other challenges they might try while moving like the plants (e.g., “What part of your body could move like the leaves? The stem? The flowers? The roots?”)
- 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.



Launch Stage: In the Engineer Lab

Guiding Question

- How can I create a storyboard that shows the life of a plant?

Learning Target

- I can sketch a stage of plant growth.

Teaching Notes

Purpose:

- In the Engineer Lab, the Launch stage continues to serve two purposes:
 - Introduce students to the purpose and materials they will use in the Lab.
 - Help students build background knowledge about the idea of plant parts and the life cycle of plants.
- This Engineer Lab connects to Next Generation Science Standard KLS-1. While creating a storyboard to show the life cycle of a plant, students focus on the following science and engineering practice: Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).

Habits of character:

- Similar to Modules 1–2, the Engineer Lab helps students build their skills of goal-setting and reflection. The Engineer Lab has a clearly shared goal by the time students reach the Choice and Challenge stage: to create a model “storyboard” that shows how a plant grows. This clearly defined end goal will help students reflect on their own progress and set benchmark goals for their work along the way.

Logistics:

- In the Engineer Lab the teacher and students build background knowledge about plants, discuss how plants grow, and then students transition to their workstation to explore the materials with their Lab group.

In advance:

- Prepare workstations by placing at each a plant growth collection and one magnifying glass for each student. Consider using the following:
 - seeds: sunflower seeds, dried peas, beans
 - shoots: bean sprouts, dill, alfalfa
 - seedlings: small tomato, pepper, basil plants
 - plants: from module lessons
- Consider:
 - Organizing plant materials into clear containers to make cleanup easier.
 - Creating supporting partnerships within Lab groups for more efficient sharing of materials, such as magnifying glasses.
 - Forming new Lab groups based on students’ progress, strengths, and needs as exhibited in the Module 2 Labs.

Materials

- ☒ Plant growth collections (one for teacher modeling and one per workstation)
- ☒ Magnifying glasses (one per student)

Experience

- Welcome students to the Engineer Lab!
- Tell students that their goal in the Engineer Lab will be the same for the next several weeks: to answer the question “How can I create a storyboard that shows the life of a plant?”
- Tell students they will be engineers, going through the design process (sketching their ideas, revising and editing, and drawing their ideas) to create a model that is a storyboard depicting how plants grow.
- Turn and Talk:
 - “What do you know about plants and how they grow?” (Plants grow from seeds; plants need to grow roots, stems, and leaves; plants move and grow toward the sun, etc.)*
- Display a **plant growth collection**. Ask:
 - “What is the same about all of these things?” (They are all parts of plants. They all grow into plants.)*
 - “What is different about all of these things?” (Responses will vary.)*
- Tell students the proper names for each item in the plant growth collection: seed, shoot, seedling, and plant.
- Remind students that their goal by the end of the Engineer Lab in this module is to create a storyboard showing the life of a plant, so today they will explore the different life stages (like how we grow from baby, to toddler, to kid, to teenager, to adult) of a plant.
- Point out that each workstation has its own plant growth collection, as well as enough magnifying glasses for each student. The magnifying glasses will allow them to look more closely at the plant items.
- Tell students that their job today is to work as a Lab group to sort the plant items in their plant growth collection from youngest to oldest (just like babies are the youngest people) and explain why they decided on that order.
- Remind students that since there is one plant growth collection per workstation, they will need to collaborate with their Lab group, be kind, and take turns as they discuss and decide upon ideas.
- Transition students to workstations.
- Circulate and support students as they work, focusing on their sharing and caring for materials.
- As you visit workstations, guide students’ reasoning and thinking by asking probing questions such as:
 - “How do you know the seed is the youngest?”*
 - “What made you decide to put the shoot here?”*
 - “How can you tell that this plant is fully grown?”*
- 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.