Kindergarten: 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 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 flowers.

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 animals as living things.

Engineer Lab

I can revise my sketches of plant growth.

Ongoing Assessment

Create Lab

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

Explore Lab

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

Imagine Lab

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

Engineer Lab

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

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 K: 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

Teaching Notes

Purpose:

- Recall that Setting Lab Goals is a time 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 Lab, learning target(s) for each 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 follow the routine established in Modules 1–2 to guide them through setting goals:
  - Turn and Talk:

    "Which Lab will you visit first? What will your goal be when you are there?" (Responses will vary)

  - Turn and Talk:

    "Which Lab will you visit second? What will your goal be when you are there?" (Responses will vary)

- 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!

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 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.).

Extend 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 flowers.

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 plants and their skill of layering to collage a flower with all of the parts (e.g., stem, petals, leaves).
- Students' collages go beyond layering and collaging with a single color; they include a variety of colors selected to accurately layer and cover the different parts of the plants.

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:
  - The Create Lab by placing flower images, flower templates, construction paper (a variety of colors), scissors, and glue sticks in the Create Lab space.
  - A paper collage flower model that includes a variety of colors selected to accurately layer and cover the different parts of the plants and the corresponding flower image.

Materials

Continued materials:

- ☑ Construction paper (various colors; for teacher modeling and one small pile per student workstation)
- ☑ Scissors (one pair for teacher modeling and one per student)
- ☑ Glue sticks (one for teacher modeling and one per student)

Additional materials:

- ☑ Paper flower collage: teacher model (new; teacher-created; see Teaching Notes)

- ☑ Flower templates (one for teacher modeling and a set per workstation)
- ☑ Flower images (one for teacher modeling and a set per workstation)

Experience

Transitioning to the Extend Stage (Whole Class):

- Gather students whole group and give them specific, positive feedback regarding their layering to create a paper collage.
- Tell students that they will continue to work with layering and collaging. Now, instead of just creating leaves, they will make a beautiful paper flower collage!
- Display the **paper flower collage: teacher model** and focus students on the different colors covering the different parts of the flower.
- Using a total participation technique, invite responses from the group:

  "What is the same about this collage and the leaf collage? What is different?" (Responses will vary, but may include: It was made by layering paper. The leaf used all green paper, but the flower has many colors.)

- Tell students they will begin by choosing a **flower template** and matching **flower image** that they find especially beautiful or interesting.
- Display the template and flower image you chose for your flower collage.
- Direct students' attention back to the paper flower collage: teacher model.
- Using a total participation technique, invite responses from the group:

  "What steps do you think the artist took to create this paper flower collage?" (Responses will vary, but may include: The artist studied the photograph of the flower, chose the colors needed to create it, and started collaging one part of the flower first, making sure to cover all the white space.)

- Reaffirm for students that this collage took several steps to create, including:
  - Studying the photograph of the flower very closely.
  - Noticing the colors of the different parts of the flower that you would need to select from the **construction paper**.
  - Selecting the part of the flower on which to begin collaging and identifying it on the template (e.g., the stem).
  - Tearing and/or using **scissors** to cut small pieces of paper and layering them on to completely cover that part.
  - Using a **glue stick** to adhere the paper and continuing to layer it to cover all parts of the flower on the template.
- Tell students that over the next several days, they will work on several different paper flower collages.
- Invite students to begin working.
- Circulate and support students 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 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

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

- Students continue to explore plants, how they change and grow, and what the students, as plant scientists, can do to help the growth of plants.

What is new about this stage of this Lab:

- During the Extend stage of the Explore Lab, students build upon their knowledge of plants and how they change and grow by trying new challenges and tracking new discoveries with the Checklist for Our Class Garden.

Habits of character:

- Some students may need additional support with perseverance as they struggle with various components of the plants they are measuring and recording. Invite students to formulate a plan before they begin or to collaborate with a partner in problem solving; this will help them persevere through these moments.

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 the Explore Lab by:
  - Placing all materials to explore plants at student workstations.
  - Previewing Steps 5–8 on the Checklist for Our Class Garden.
  - Creating supportive partnerships within Lab groups.

Materials

Continued materials:

- ☑ Spray bottle of water (one per student workstation)
- ☑ Eyedropper (one per student workstation)
- ☑ Cup of water (one per student workstation)
- ☑ Ruler (one per student workstation)
- ☑ Plants (one per student workstation)
- ☑ Checklist for Our Class Garden (from Practice stage; one for teacher modeling and one per student)
- ☑ Pencils (one per student)

Experience

Transitioning to the Extend Stage (Whole Class):

- Share with students that the biggest difference between the Practice stage and Extend stage for the Explore Lab are the new challenges they will work through with a partner on the Checklist for Our Class Garden.
- Display the **Checklist for Our Class Garden**.
- Remind students that this checklist provides new and continued scientific challenges to track the health and growth of the plants, and that they will complete each challenge with a partner and check off each one they complete, then record a sketch and note about it.
- To build anticipation, invite students to give a signal of affirmation if they are ready to hear challenge #5 from the checklist; on their signal, read it aloud:
  - "How tall is the plant?"
- Using a total participation technique, invite responses from the group:

  "How might you try to complete this challenge with your partner?" (measure the height using the ruler)

  "How can you be sure to work cooperatively with your partner?" (Responses will vary, but may include: take turns with the ruler; have one person hold the ruler and the other look at the number.)
- Review the other challenges on the checklist so students are familiar with them before encountering them independently.
- Remind students how to use the checklist:
  1. Complete the challenge with your partner.
  2. Check off the challenge on the checklist.
  3. Sketch and write the results in the final column.
- Remind students that they might not finish all of the challenges today and that is okay. By using the checklist, they can keep track of the challenges they still need to complete.
- Tell students that they will find the Checklist for Our Class Garden and all necessary materials at the workstations: **spray bottles, eyedroppers, cups of water, rulers, plants,** and **pencils**.
- 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 we took turns measuring the plant!" "Great work recording sketches and notes in your Labs notebook!"

Extend 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 animals as living things.

Teaching Notes

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

- Students continue to use movement and the malleable materials of the Imagine Lab to represent living things.

What is new about this stage:

- During the Extend stage, students are invited to use movement to represent different animals. They have the option to create an animal mask to wear while representing the animal through movement.

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:

- Create an animal mask model similar to the animal mask: example included in the Supporting Materials.
- Prepare the Imagine Lab space with:
  - Materials to make animal masks (see materials list).
  - A variety of imaginative play materials and the materials to make animal masks (other possible materials might include modeling clay or felt or magnet boards).

Materials

Continued materials:

- ☑ Plant masks (from the Launch stage; a variety per student)
- ☑ Building blocks (one set of wood or linking blocks)
- ☑ White board (one large to share or several small)
- ☑ White board markers (one per student)
- ☑ Hand or finger puppets (several to share)
- ☑ Dress-up materials (several to share)

Additional materials:

- ☑ Animal mask: example (see Supporting Materials)
- ☑ Animal mask: teacher model (new; teacher-created; see Teaching Notes)
- ☑ Index cards (one per student)
- ☑ Crayons (class set; variety of colors in Lab space)
- ☑ Sentence strips (one per student)
- ☑ Stapler (one; used by the teacher to staple the sentence strips)

Experience

Transitioning to the Extend Stage (Whole Class):

- Welcome students to the Imagine Lab!
- Give students specific, positive feedback about their creative movements for representing plants in the Imagine Lab thus far.
- Using a total participation technique, invite responses from the group:

  "Can you share some movements you created to represent different plants?" (Responses will vary.)

- Turn and Talk:

  "If you could be a different living thing, what would you be? Why?" (Responses will vary.)

- Select students to share out.
- Tell students that they will now have the opportunity to act out a different kind of living thing, but that they will have to watch your movements to guess what kind of living thing.
- Model moving your body like two or three different animals (e.g., pretend to clean yourself like a cat, use your arm to trumpet like an elephant, etc.).
- Select volunteers to share out.
- Confirm students' responses by telling them that they will now use movement to represent animals as living things.
- Display the **animal mask: teacher model** (see **animal mask: example** for reference as needed) and invite students to stand up in the space and move their body like that animal (e.g., stamping their feet like a horse). Ask:

"What parts of your body could you use in your animal movements today?" (Responses will vary.)

"What materials of the Imagine Lab would you like include in your movements?" (Responses will vary, but may include: I would like to use the white board to draw a forest where my animal might live. I would like to use the dress-up clothes to create fur or wings.)

- Give students specific, positive feedback on their ideas and offer more if they struggle to think of a variety of ways in which to use the materials of the Imagine Lab.
- Remind students that they will have multiple opportunities to act and use movement in the Imagine Lab. This means they should be flexible in the animals and materials their group chooses.
- Tell students that they may also choose to continue using movement and the **plant masks** to represent plants in the Imagine Lab.
- Point out the materials in the Imagine Lab space: **index cards, crayons, sentence strips,** and the continued Imagine Lab materials.
- Remind students that if they are making a new animal mask, they need to be patient and ask an adult to staple the mask to the correct size.
- Invite students to get to work moving and imagining different living things.
- Circulate and support students, specifically in the area of generating creative movement ideas.
- 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 create a storyboard that shows the life of a plant?

Learning Target

- I can revise my sketches of plant growth.

Teaching Notes

Purpose:

- Students continue to explore the various materials they will use in the Lab and begin to revise sketches that demonstrate 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).

What is new about this stage:

- During the Extend stage, students are invited to revise their sketches of the stages of plant growth to prepare for the final product: a Life Cycle of a Plant Storyboard.

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:

- Complete plant growth sketches in the teacher modeling version of plant growth – draft.
- Prepare workstations by placing at each a set of the plant growth collection, students' plant growth – drafts, and magnifying glasses.

Materials

Continued materials:

- ☑ Plant growth collections (one for teacher modeling and one collection per workstation)
- ☑ Plant growth – draft (one for teacher modeling and one per student)
- ☑ Pencils (one per student)
- ☑ Magnifying glasses (one per student)
- ☑ "Austin's Butterfly" (optional; from Module 1; video; play in entirety)

Additional materials:

- ☑ Erasers (several per workstation)

Experience

- Welcome students to the Engineer Lab!
- Remind students of the guiding question:
  - "How can I create a storyboard that shows the life of a plant?"
- Remind students of the design process for creating a storyboard. As you read the process aloud, invite students to make a check in the air when they hear a step they have completed:
  1. Sketch the stages of plant growth.
  2. Revise your sketches for accuracy.
  3. Draw a final draft with attention to detail and labels.
- Confirm with students that they have completed the first step of sketching the stages of plant growth.
- Using a total participation technique, invite responses from the group:

  "What step will we complete next in the design process?" (revise sketches for accuracy)

  "What does it mean for something to have accuracy or be accurate?" (it is precise and realistic)
- Tell students that to revise their sketches for accuracy, they need to look closely again at the **plant growth collection** at their workstation.

- Display the **plant growth – draft**.
- Model how to revise a sketch by looking closely at the sketch, then using the **magnifying glass** to look closely at the plant item, then using the eraser to erase parts that need to be fixed, and then redrawing. Ask:
- "How did I revise my sketch?" (by erasing the parts that needed to be fixed; you changed only what was wrong and kept the good parts)
- Remind students of the video **"Austin's Butterfly"** and replay it if necessary. Emphasize the importance of perseverance while revising work.
- Tell students that their job is to work independently to revise their sketches of the different stages of plant growth. Tell them that these sketches will help them to create a final storyboard of the life of a plant in the Choice and Challenge Labs.
- Transition students to workstations.
- Circulate and support students as they work, focusing on revising for accuracy and encouraging students to persevere.
- 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.