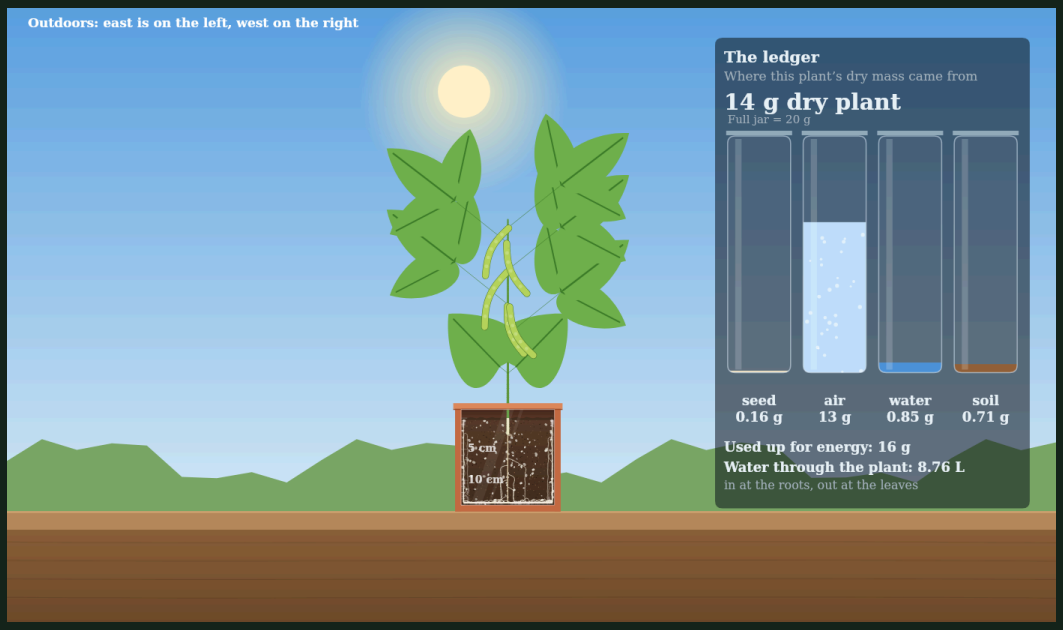
mytekDev

Seed Lab: Seed to Seed

Grades 3-5 · 45 minutes

Life science



Slides, rubric and answer key **Print and go** **No student accounts**

Chromebook friendly

What's included

- A one-page overview: objectives, essential question, vocabulary, standards and assessment
- A 45-minute lesson sequence: warm-up, direct instruction, guided practice, independent practice, closure
- Slides for the board: a PowerPoint file that also opens in Google Slides
- A student worksheet with a QR code and a life cycle circle
- A 3-question exit ticket, two to a page, with an answer key
- A rubric: 3 criteria, 4 levels, scored out of 12
- Differentiation for English learners, students with IEPs or 504 plans, and students who need more support or more challenge
- Cross-curricular extensions, and notes for teaching it in grades 1 and 2 and in middle school life science
- Standards: NGSS

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Students grow a bush bean from seed to seed. The stage chips light up one by one: the seed swells, the first root comes out on Day 4, the shoot comes up on Day 11, leaves open, flower buds on Day 35, flowers on Day 40, pods on Day 46, and on Day 85 the seeds are ripe. They count the seeds (14, outdoors) and plant one of them: generation 2 starts the same cycle again.

At a glance

ESSENTIAL QUESTION

How does a bean seed become a plant that makes new seeds?

OBJECTIVES

Students will be able to:

- name the stages of a bean's life cycle in order
- say which stage makes new seeds and why a bean needs no bees
- count the seeds one plant makes and plant one as the next generation
- draw the life cycle as a circle

VOCABULARY

Life cycle, Sprout, Seedling, Pollination, Generation

STANDARDS

3-LS1-1, 112.5(b)(13)(B)

TIME AND MATERIALS

45 minutes, grades 3-5.

- One computer or Chromebook per student
- A projector
- The worksheet and exit ticket, one copy each per student
- The rubric, one copy per student if you grade the work

PREP

Make copies of the worksheet and exit ticket. Before class, open mytekdev.com/try/seedlab?lesson=seed-to-seed&ref=tpt-seedlab-2 once on a student computer: a bush bean is planted outdoors. Run it yourself, about five minutes at a day a second: flowers on Day 40, ripe seeds on Day 85, then Count the seeds (14) and Plant one of its seeds.

ASSESSMENT

- Formative: the questions under What to look for, asked while students work, and the exit ticket (answer key included).
- Summative: the worksheet, scored with the rubric.

TECHNOLOGY AND PRIVACY

Runs in any browser, Chromebooks included, with nothing to install. Students need no account and no email: the link works signed out, and nothing they do is stored on our server unless they choose to save.

Lesson sequence

MINUTES	STAGE	WHAT YOU DO	WHAT STUDENTS DO
0 to 5	**Warm-up** Hook	Show the title, essential question and Today I can slides (about 1 minute). Then the warm-up: draw what happens between a seed and new seeds.	Draw the warm-up on the worksheet.
5 to 12	**Direct instruction (I do)** Model it	Project the app with the starter open. Press Next stage and name each stage as its chip lights: swelling, first root (Day 4), up (Day 11), first leaves, first three-part leaf. Show the stages slide. **It's working when:** The root always comes out before the shoot. Ask why a seed might send a root first.	Watch, and fill in the vocabulary on the worksheet.
12 to 22	**Guided practice (We do)** Grow it together	Students open the link or scan the QR code. A short guide has them set a day a second and press Start. Everyone pauses when the Flowers chip lights up. Ask what the flowers are for. **Watch for:** Students who think the bean needs bees. A bean pollinates itself inside the closed flower; the card says so for a sunflower, which does need bees or a brush.	Write the day each stage starts on the worksheet.
22 to 38	**Independent practice (You do)** The next generation	Students run to ripe seeds (Day 85), count the seeds, and plant one. Walk the room with the What to look for questions. **If they ask:** "Generation 2's seed is a little smaller or bigger than the first one. Why might seeds from one plant differ?" The seed's size	Count the seeds, plant one, and draw the life cycle as a circle.
38 to 45	**Closure** Showcase and exit ticket	Show the Showcase slide. Two students explain why a life cycle is a circle, then compare with the warm-up drawings. Hand out the exit ticket.	Answer the exit ticket.

Before you teach: a five-minute walkthrough

Open mytekdev.com/try/seedlab?lesson=seed-to-seed&ref=tpt-seedlab-2. A short guide opens over the app. A bush bean is planted outdoors in a medium pot, with the helper watering it.

1. **Start.** Set "A day in 1 second" and press `Start`. The first root comes out on Day 4, the shoot is up on Day 11, the first leaves open on Day 14 and the first three-part leaf on Day 20.
2. **Flowers.** Flower buds on Day 35, flowers on Day 40, pods on Day 46. Pause when the Flowers chip lights up, to ask what comes next.

3. **Ripe.** On Day 85 it stops: the leaves turn yellow and the pods hang dry. Press `Count the seeds`: 14 ripe seeds.
4. **Generation 2.** Press `Plant one of its seeds`. A fresh pot, the same room, and the card says generation 2.

> The moment that lands is planting the plant's own seed: the circle closes.

Background for the teacher

A bush bean is an annual: it lives one season, flowers, makes seeds and dies. A bean pollinates itself inside the flower before it opens, so it needs no insects. Its flowers turn into pods, and each pod holds a few seeds.

Seeds from one plant are not all the same size. In the app, each new generation's seed is a little bigger or smaller, and a smaller seed has a little less stored food to start on.

Common mistakes: flowers are only for looks; seeds need light to sprout; a plant grows forever. The app grows one model plant, the same way every time, so two students with the same settings get the same numbers. Real plants vary from seed to seed; a real bean in a bag beside the app shows that.

What to look for

Ask these while students work. A student who has understood the lesson can answer them without help:

- Which came out first, the root or the shoot?
- What do the flowers turn into?
- How does a bean get pollen to the right place without bees?
- What happens to the plant after its seeds are ripe?
- Why is the life cycle drawn as a circle?

> The last question is the real test: a student who connects the ripe seed back to the first stage has the idea of a cycle.

Cross-curricular extensions

- Math: if each of the 14 seeds made 14 more, how many seeds would generation 3 make?
- Art: draw the life cycle as a circle with a picture for each stage.
- English: write the life story of a bean, from its point of view, using the vocabulary words.
- Real plants: grow a bean in a bag (the Journal has a printable sheet) and compare its first two weeks with the app.

Vocabulary

Life cycle	The stages a living thing goes through, from start to making new young.
Sprout	When a seed starts to grow: the root comes out first.
Seedling	A young plant that has just come up.
Pollination	Moving pollen to the part of a flower that makes seeds. A bean does it inside its own flower.
Generation	One step in a family line. A plant grown from another plant's seed is the next generation.

Differentiation

ENGLISH LEARNERS

- Keep the vocabulary slide up, and point at the screen as you say each word: the jars, the roots and the stage chips carry the meaning.
- Pair each learner with a partner; the stage chips name each stage as the picture changes.
- Accept the life cycle circle as a labeled drawing.

STUDENTS WITH IEPS OR 504 PLANS

- Pair students for the independent part, one at the app and one drawing.
- Zoom the browser to 125%; the stage chips stay readable.
- Give a circle with the stages already in boxes, to put in order.

STUDENTS WHO NEED MORE SUPPORT

- A sentence starter: "First the seed ___, then ___, then ___."
- A check-in at flowers: every student has reached flowers before anyone runs on.
- Ask only: which comes first, the root or the shoot?

STUDENTS READY FOR MORE

- Grow a pea under the grow light, always on: it ripens on Day 73. How is its life cycle like the bean's?
- Grow one radish outdoors and leave it to flower. Why does it set almost no seed? (Read the card.)
- Open Puzzles and try Seed to seed, fast.

Adapting for other grades

Younger students: In grades 1 and 2, do it together on the projector: press Next stage and name each stage aloud. Skip the counting; draw the circle as a class.

Older students: In middle school, add the flowers' work (MS-LS1-4): a bean pollinates itself, a sunflower needs bees or a brush, a lone radish sets almost no seed because it cannot use its own pollen. Students grow all three and explain the seed counts.

Student worksheet

Name: _____ Date: _____

Open the app: scan the QR code, or go to mytekdev.com/try/seedlab?lesson=seed-to-seed

Essential question: How does a bean seed become a plant that makes new seeds?

Warm-up: Draw what you think happens between a seed and new seeds. _____

1. **Vocabulary.** Life cycle, sprout, seedling, pollination, generation: write each in your own words.

2. **The stages.** Write the day each stage started: first root ____; up ____; first leaves ____; flowers ____; pods ____; ripe seeds ____. How many seeds? ____

1. Draw the bean's life cycle as a circle, from seed back to seed.

2. Why does a life cycle go in a circle?

Seed Lab: Seed to Seed

Exit ticket

Name: _____

1. What comes out of a bean seed first? (A) a leaf (B) a root (C) a flower

2. A bean's flowers turn into (A) pods with seeds (B) leaves (C) roots

3. Explain why we draw a life cycle as a circle.

Seed Lab: Seed to Seed

Exit ticket

Name: _____

1. What comes out of a bean seed first? (A) a leaf (B) a root (C) a flower

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3. Explain why we draw a life cycle as a circle.

Answer key: exit ticket

QUESTION	ANSWER	WHY
1	B	The root comes out first, on Day 4, before the shoot is up.
2	A	The flowers turn into pods, and the pods hold the seeds.
3	The seeds start it again	The plant's ripe seeds grow into new plants that go through the same stages. "It repeats" alone is half.

Rubric

Score each row from 1 to 4.

Name: _____

CRITERIA	4 EXCEEDS	3 MEETS	2 APPROACHING	1 BEGINNING
The stages	All the stages in order, with the day each one started.	The stages in order.	Some stages, out of order.	No stages.
The next generation	Counted the seeds, planted one, and says the new plant starts the same cycle.	Counted the seeds and planted one.	Counted the seeds.	Neither.
The circle	A labeled circle from seed back to seed, with the flower's job named.	A labeled circle from seed back to seed.	A line from seed to plant.	No drawing.

Total: ____ / 12. A score of 9 or more meets the objectives.

Standards

The lesson is built for 3-LS1-1, whose assessment is limited to the life cycles of flowering plants, and for Texas grade 3, which names lima beans and radishes.

FRAMEWORK	CODE	GRADES	STANDARD	HOW THE LESSON MEETS IT
NGSS	**3-LS1-1**	3	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	Students model a bean's life cycle from seed to seed, and plant the next generation.
Texas TEKS	**112.5(b)(13)(B)**	3	Explore, illustrate, and compare life cycles in organisms such as beetles, crickets, radishes, or lima beans.	Students grow a bean through its life cycle and draw it.

Checked November 2026 against: NGSS 3-LS1-1, From Molecules to Organisms, Texas TEKS, Science, grade 3 (19 TAC 112.5).

Optional: save student work in a free class

The whole lesson runs at the link on the worksheet, with no accounts and no sign-up.

To keep students' work, and see it all in one place, make a free class. It takes about ten minutes, once, and covers every lesson in this series: mytekdev.com/tools/class-setup

Students in a class open mytekdev.com/tools/seed-lab/lessons/seed-to-seed/start instead of the worksheet link. Each one gets their own copy of the starter, and the same link reopens it next time.

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