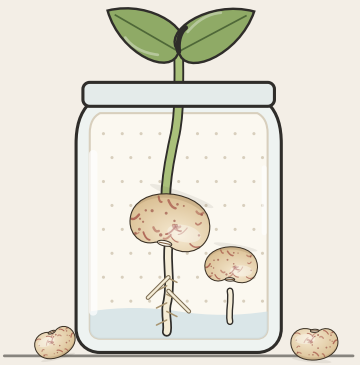
A SPARKATLAS PACK FOR LITTLE NATURALISTS

From Seed to Plant

Open a bean, grow one in a jar and watch the tiny root come out first, then the shoot.



PHASEOLUS VULGARIS

INSIDE THIS PACK

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04 Inside a bean
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06 Bean in a jar: a light test
07 My bean journal

YOU WILL NEED

- A few big dried beans from the kitchen
- A clear jar or cup and paper towel
- Scissors, glue stick and crayons

TIME

10 to 20 minutes a page. The jar takes about two weeks.

Our planting log

Planted on _____ Kind of bean _____

Where is our jar? · Circle one

◯ window ◯ shelf ◯ cupboard ◯ other

AGES Sprout 2–3 Seedling 3–5 Sapling 5–7

Every page has an easier and a stretch idea.

WHY THIS MATTERS

A bean holds a whole plant folded up inside. Watching one wake up teaches patience, careful looking and the idea that living things change in a cycle.

Before You Start

A one-minute read for grown-ups.

How to use it (one page a day is plenty)

1. **Start the jar first.**
Set up page 6 on day one: the root needs a few days, and the other pages fill the wait.

2. **Soak one bean overnight.**
A soaked bean peels and opens easily for page 4. It's for looking, not eating.

3. **Look a little every day.**
A quick daily peek and a drawing every two or three days fill the journal.

4. **Ask before you tell.**
"What do you think comes out first?" A wrong guess makes the answer stick.

Three ways to play

Sprout 2–3

Feel a dry and a soaked bean, point to each picture as you name it, help water the jar and look for the root.

Seedling 3–5

Put the pictures in order, tick what you see in the jar and tell the bean's story with "first" and "then".

Sapling 5–7

Run the light test, measure the shoot with paper clips, name the parts of a bean and write in the journal.

Little safety notes

Dried beans are a choking risk for under-threes: a grown-up handles them and stays close. Raw dried beans are not for eating, so wash hands afterwards. With little ones, use a plastic cup instead of glass. If the towel smells bad or grows fuzzy mould, start again with a fresh one.

Printing tips

Page 1 is the cover. To save ink, print pages 2 to 7 only. Page 5 is for cutting, so use thicker paper if you have it. Every page works in black and white, on Letter or A4.

Wonder out loud together

- How does the root know which way is down?
- What would happen with no water?
- Where does a bean keep its food?
- Where did the very first bean come from?

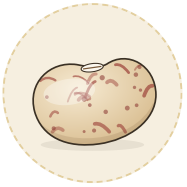
FOR GROWN-UPS

Some beans never sprout, and that's normal. Plant three or four at once, and treat a bean that stays asleep as a question to wonder about together.

The Life Cycle of a Bean

From one seed to a pod full of new seeds.

Start at number 1 and follow the arrows round. Say each name out loud.



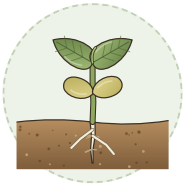
1 Seed

A baby plant sleeps inside, with its food packed around it.



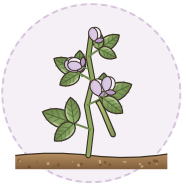
2 Sprouting

Water and warmth wake it up. The root comes out first, then the shoot.



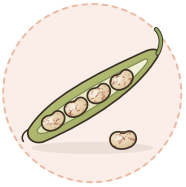
3 Seedling

The shoot grows up to the light and the first leaves open.



4 Flowering plant

The grown plant makes flowers. Each flower can become a pod.



5 New seeds

Each pod holds new beans, ready to start again.



1 bean

can grow a plant with many new beans

Talk about it

- Which stage is your favourite?
- What does a bean need to wake up?
- Where does the cycle start again?

FOR GROWN-UPS

A life cycle is a story that goes round and round: the end, new seeds, is also the beginning. Naming the stages in order builds sequencing, a skill children use in stories, maths and planning.

PLAY IT YOUR WAY

Easier: Point to each picture and name it together: seed, root, little plant, flowers, beans.
Stretch: Cover the words and tell the whole cycle from memory, using “first”, “then” and “at last”.

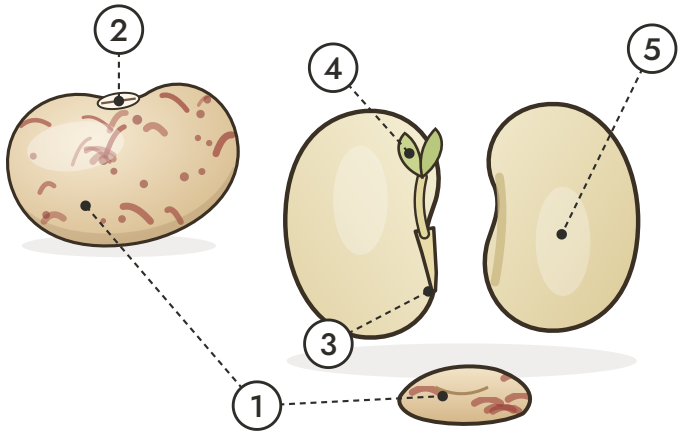
Inside a Bean

Soak it, peel it, open it: there's a baby plant inside.

Soak a bean overnight. Then peel it, open it like a book and find each part.

1. Soak a dry bean in water overnight.
2. Rub off the thin skin with your fingers.
3. Open the two halves like a book and look.

What we found inside



1. **Seed coat**
   The bean's skin. It keeps the inside safe.
2. **Scar**
   Where the bean was joined to its pod.
3. **Baby root**
   Tiny and pointed. It comes out first.
4. **Baby leaves**
   Two tiny leaves, folded up and waiting.
5. **Food store**
   Two thick halves full of food for the baby plant.

Draw a dry bean and a soaked bean

Dry

Soaked

Did you know?

A soaked bean drinks up water and swells, often to nearly twice its size. The water helps wake up the baby plant inside.

FOR GROWN-UPS

Opening a seed shows children that a plant doesn't come from nowhere: it's already there, folded up, with a packed lunch. Careful looking and naming the parts is how botanists start too.

PLAY IT YOUR WAY

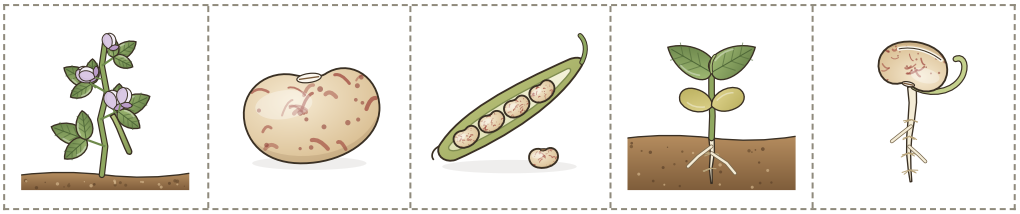
Easier: Feel a dry bean and a soaked bean. Which one is soft? Which one is bigger?
Stretch: Use a magnifier to find all five parts, then label your own drawing.

Picture Order

Cut out the pictures and put the bean's life in order.

Cut along the dashed lines. Mix up the cards, then glue them in order below.

Cut out the five pictures



Glue them in order

Start with the seed and finish with the new seeds. Then write or say a word under each one.

1	→	2	→	3	→	4	→	5
First		Then		Next		After that		At last

Tell the story

- Tell the bean's story with the cards.
- Which card was hardest to place?
- What comes after the new seeds?

FOR GROWN-UPS

Putting pictures in order is the same skill as retelling a story: what happened first, next and last. Saying it out loud with "first" and "then" builds the words for it.

PLAY IT YOUR WAY

Easier: A grown-up cuts out three cards: seed, seedling and flowering plant. Put just those in order.
Stretch: Write a word or a sentence under each card, then check it against the life cycle page.

Bean in a Jar

Grow a bean where you can see everything, and test what it needs.

Set up two jars. Guess first, then check every day.

1. Line a clear jar with paper towel.
2. Tuck 2 or 3 beans between the towel and the glass.
3. Add a little water: damp, not swimming. Seeds need air too.
4. Keep it warm. Add water when the towel dries.

The light test: does a bean need light to sprout?

Make two jars the same and keep both warm. Put jar A in a bright spot and jar B in a dark cupboard.

A Bright spot

After a week, draw what you see

B Dark cupboard

After a week, draw what you see

I think the beans will sprout in: ☐ jar A ☐ jar B ☐ both jars

What will come out first?

☐ Root ☐ Shoot ☐ Leaves

After the test

A seed carries its own food, so it can sprout in the dark. Once its leaves open, it needs light to make more food. In the dark, a seedling grows tall, thin and pale, as if it's looking for light.

FOR GROWN-UPS

A fair test changes just one thing. Here only the light is different, so any difference must come from the light. Guessing first turns a jar into a real experiment.

PLAY IT YOUR WAY

Easier: Set up one jar together. Your child adds the water and checks the towel each morning.
Stretch: Run both jars and compare them after a week. What's the same? What's different? Why?

My Bean Journal

Look, draw and measure every few days.

Every few days, write the day, draw your bean and tick what you can see.

Tick: root shoot leaves measure with paper clips

Day _____

_____ clips tall

Day _____

_____ clips tall

Day _____

_____ clips tall

Day _____

_____ clips tall

Day _____

_____ clips tall

Day _____

_____ clips tall

Try this

When the root is as long as a finger, lay the jar on its side (lid on) for a day. Which way does the root grow now? Roots always turn to grow down.

I noticed...

I wonder...

FOR GROWN-UPS

Drawing the same bean again and again trains careful looking, and the journal becomes proof of change over time. When the leaves open, plant the bean in a pot of soil and keep the story going.

PLAY IT YOUR WAY

Easier: Look together each morning. Your child points to the root and the shoot, and you draw.
Stretch: Measure the shoot with paper clips each time. On which days did it grow the most?