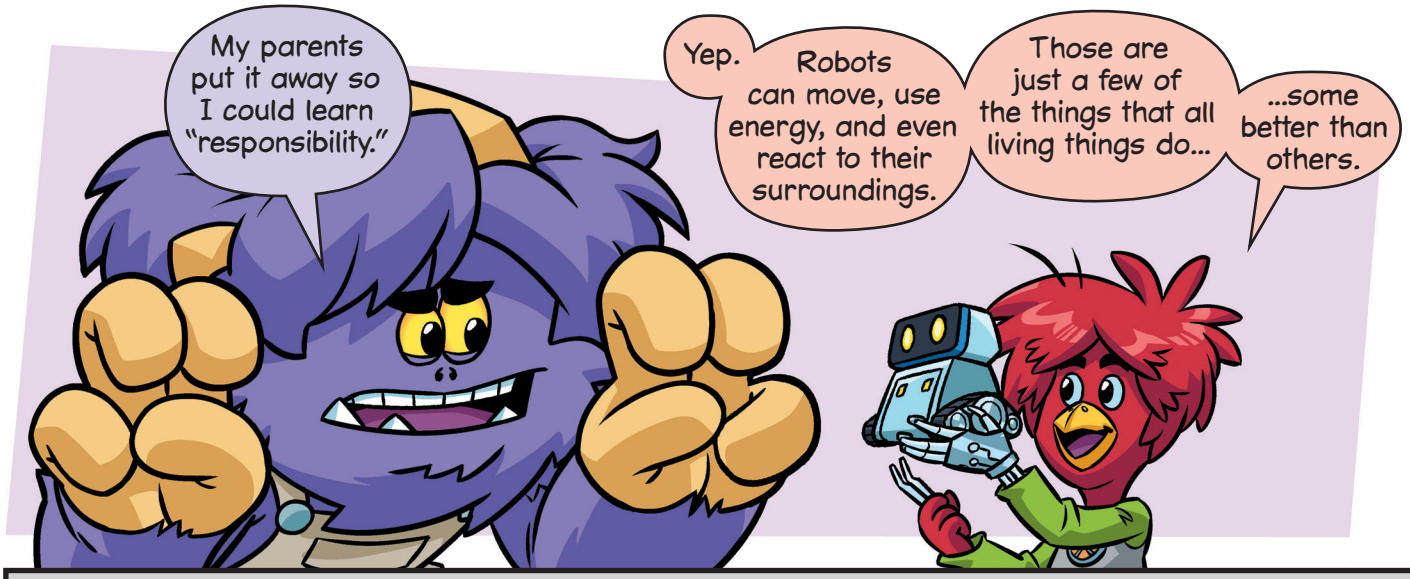
CHAPTER 12: LIVING THINGS

At first glance, this photo doesn't appear to have any living things in it, just rocks. However, if you look closely, you might see some unusual plants that are camouflaged as pebbles. What features can help us recognize something as a living thing?

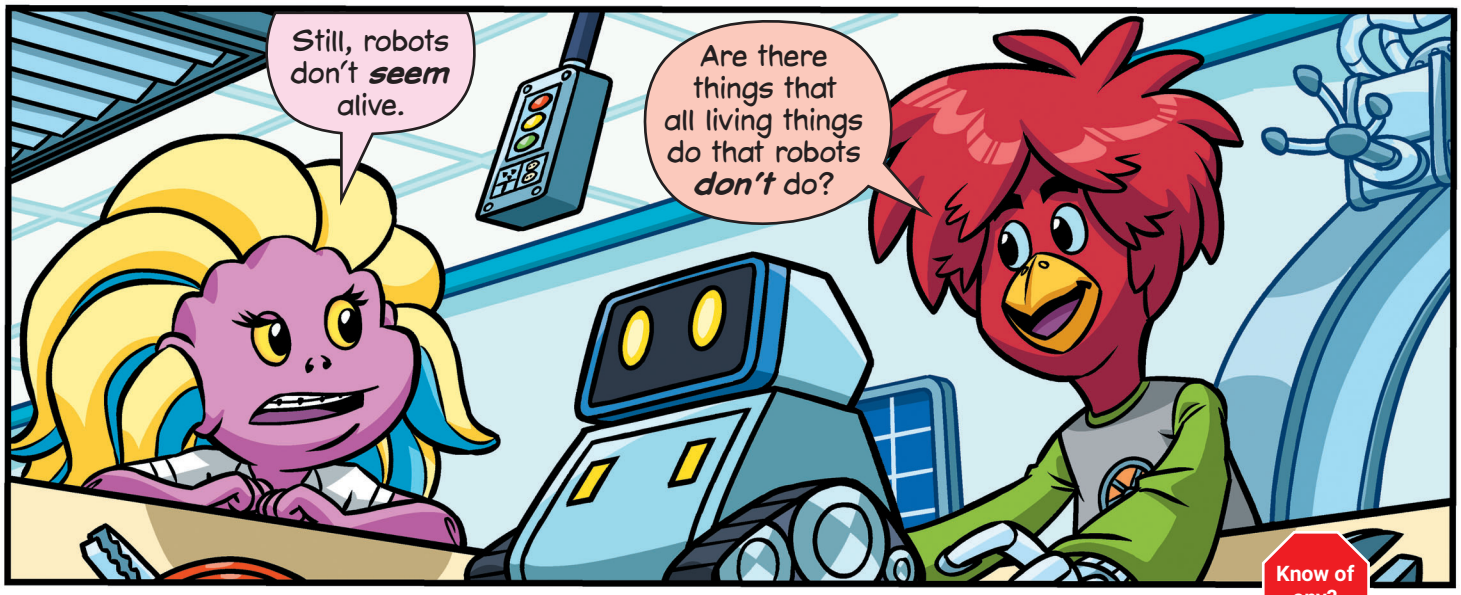
Some of the rocks in this photo aren't rocks at all. They are small plants called lithops. They only resemble plants when they are in bloom.

Lithops are adapted to dry habitats in Southern Africa where there aren't many plants growing. Hungry plant-eating animals might pass these plants by thinking they are just rocks. This is a rare example of camouflage in the plant world.

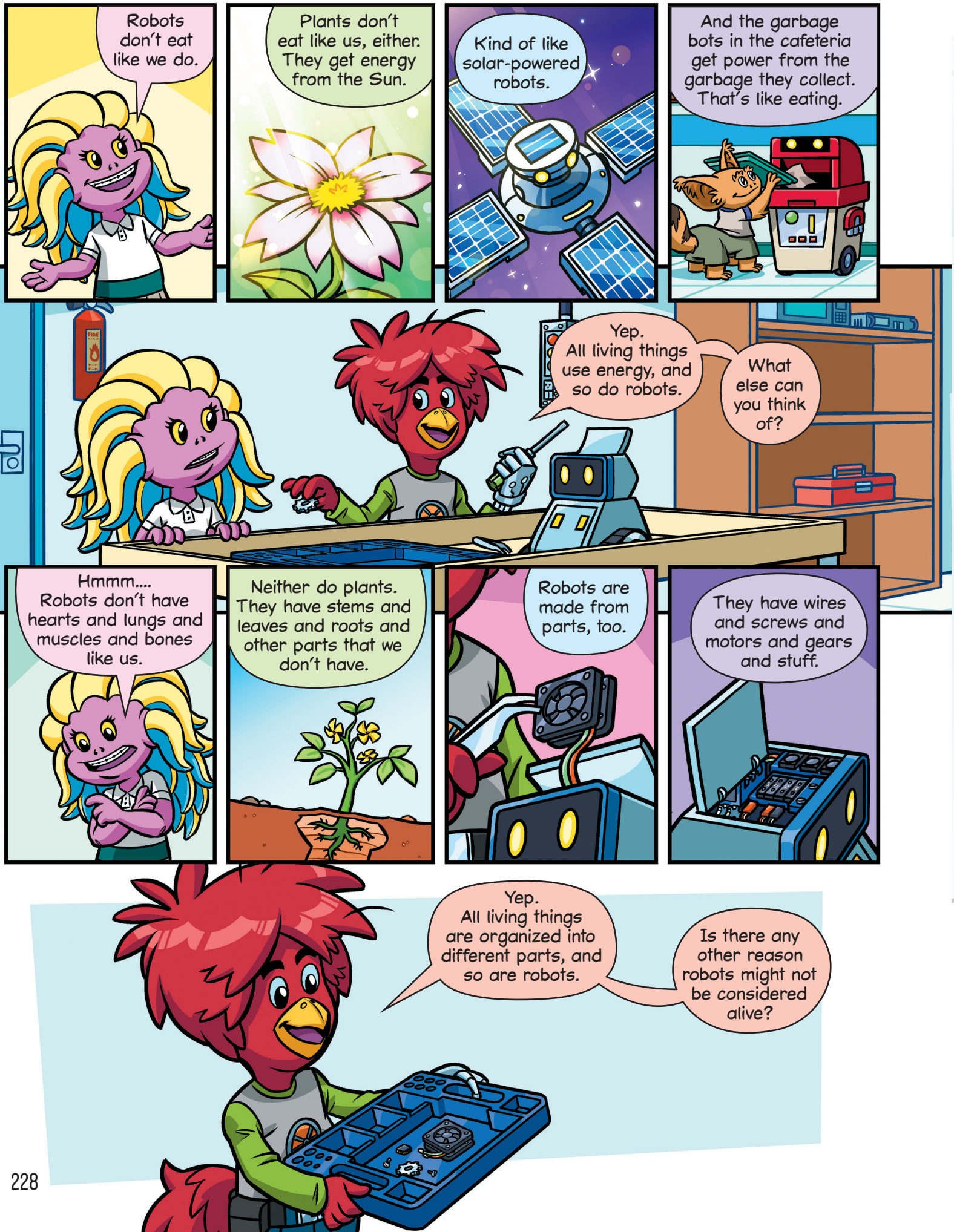

MAKER SPACE
IS IT ALIVE?
Zak, you know a lot about robots.
How smart would a robot have to get to be alive?
That's an interesting question, Grogg.
Does being smart make something alive?
Can you think of a living thing that isn't very smart?
Hmmm...
My aunt has a chihuawalrus that isn't too bright, but it's definitely alive.
Trees are alive. And they don't even have brains!
That's true.
I've never seen a tree do anything very smart.
Lots of living things don't have brains.
I don't think you have to be smart to be alive.
Does that mean robots are alive?
What do you think?

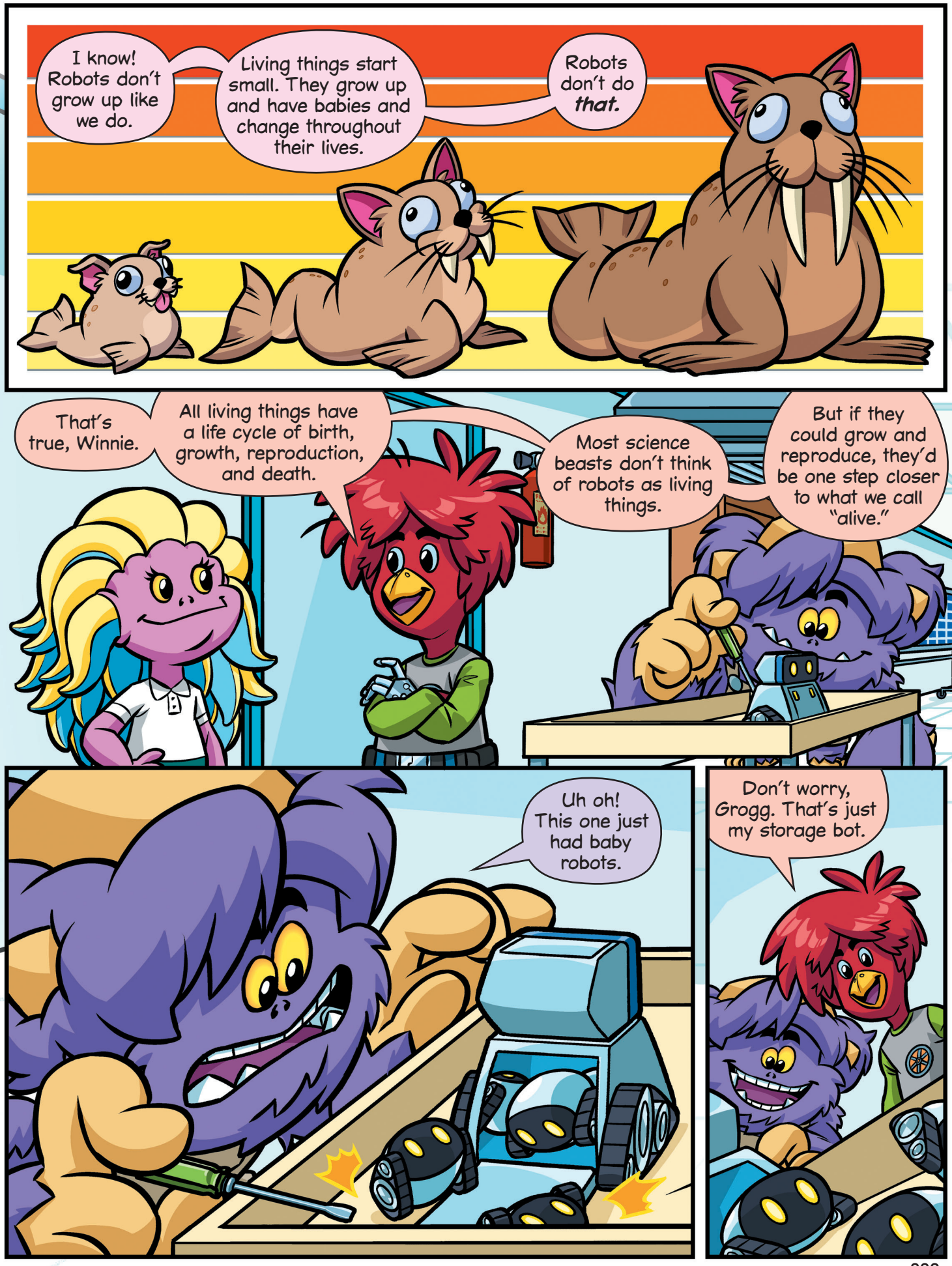


PLANTS CAN'T WANDER FROM PLACE TO PLACE, BUT THEY DO MOVE AND REACT TO THEIR SURROUNDINGS IN WAYS THAT NON-LIVING THINGS LIKE ROCKS CAN'T.



Know of any?




I know! Robots don't grow up like we do.
Living things start small. They grow up and have babies and change throughout their lives.
Robots don't do *that.*
That's true, Winnie.
All living things have a life cycle of birth, growth, reproduction, and death.
Most science beasts don't think of robots as living things.
But if they could grow and reproduce, they'd be one step closer to what we call "alive."
Uh oh! This one just had baby robots.
Don't worry, Grogg. That's just my storage bot.

IT'S ALIVE!

All living things have some features in common. Living things must have all of the qualities below to be considered alive.

REACT

Living things react to changes in their environment. Living things respond to changes in light, temperature, sounds, and more.

GROW

Living things grow and change over time. Living things grow when the cells they are made of become larger or when their number of cells increases.

USE ENERGY

Plants get energy from sunlight. They can store this energy for later use in sugars and starches. Animals get energy by eating plants, or by eating animals that have eaten plants.

REPRODUCE

Living things make offspring that are similar in appearance and behavior to themselves.

HAS PARTS

Living things have bodies that are organized into parts. Each part has a job to do.

1 Tomato plants and icicles both change over time. Check one or more abilities that a plant and an icicle both have, then circle the living thing.

Tomato plant

Icicles

- ○ Reacts
- ○ Grows
- ○ Uses energy
- ○ Reproduces
- ○ Has parts

2 An automatic sink can sense your hands and turn on. A sunflower senses sunlight and turns toward it. Check one or more abilities that an automatic sink and a sunflower both have, then circle the living thing.

Automatic Sink

Sunflower

- ○ Reacts
- ○ Grows
- ○ Uses energy
- ○ Reproduces
- ○ Has parts

3 A giraffe eats leaves. If you've been camping, you might have helped "feed" a fire. Check one or more abilities that a giraffe and a campfire both have, then circle the living thing.

Giraffe

Camp fire

- ○ Reacts
- ○ Grows
- ○ Uses energy
- ○ Reproduces
- ○ Has parts

DISCUSSION:

4 Do you think a robot could ever be considered alive? Explain.