



CreositySpace

Connecting Kids to STEM Through Entrepreneurship

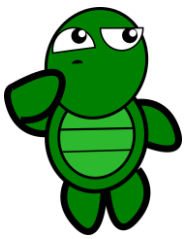
My STEM Explorer Notes™

Soil—It is more than just DIRT!

Soil Savers

How does the soil support the plants and animals in our community?





What Grows Here?



Can you describe the different ground types?

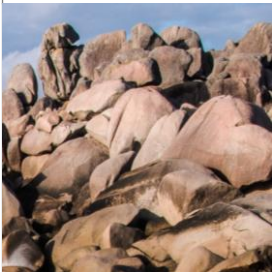
What can grow there?



Sand



Pebbles



Rocks



Soil

Vocabulary

Word	Definition	A Picture or Simplified Definition
Nutrient	A nutrient is food that gives us energy.	
Soil	Soil is a special kind of dirt that contains water, air, and nutrients.	
Organic	Something that is, or was, alive is called organic.	
Microbe	A microbe is a very very small living creature.	

Extra Vocabulary

Word	Definition	A Picture or Simplified Definition
Decompose	To decompose is when things that were living turn into nutrients.	
Humus	Humus is the organic part of soil.	
Topsoil	Topsoil is the top layer of soil. It has the most humus.	
Subsoil	Subsoil is below topsoil. It has more clay, sand and rocks than topsoil.	

Investigation

Weather Watchers



What types of weather do you know about?

We are going to watch the weather.

We are going to look for patterns in the weather.

Let's watch the weather. What patterns do we see?

Month

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

What patterns did you see this month?

Handwriting practice lines for the first question. Each line set consists of a solid top line, a dashed middle line, and a solid bottom line. There are three such sets of lines provided for writing.

What else did you observe?



Handwriting practice lines for the second question. Each line set consists of a solid top line, a dashed middle line, and a solid bottom line. There are three such sets of lines provided for writing.

Let's watch the weather. What patterns do we see?

Month

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

What patterns did you see this month?

Handwriting practice lines consisting of three sets of solid top and bottom lines with a dashed middle line.

What else did you observe?



Handwriting practice lines consisting of three sets of solid top and bottom lines with a dashed middle line.

Let's watch the weather. What patterns do we see?

Month

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

What patterns did you see this month?

Handwriting practice lines for the question "What patterns did you see this month?". The page contains three sets of horizontal lines, each consisting of a solid top line, a dashed middle line, and a solid bottom line.

What else did you observe?



Handwriting practice lines for the question "What else did you observe?". The page contains three sets of horizontal lines, each consisting of a solid top line, a dashed middle line, and a solid bottom line.



How Do We Use It?



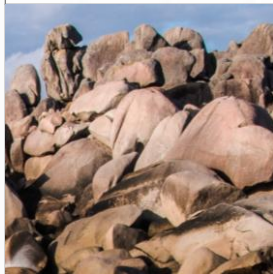
Can you describe things we do with different ground types?



Sand



Pebbles



Rocks



Soil

What Is Soil?

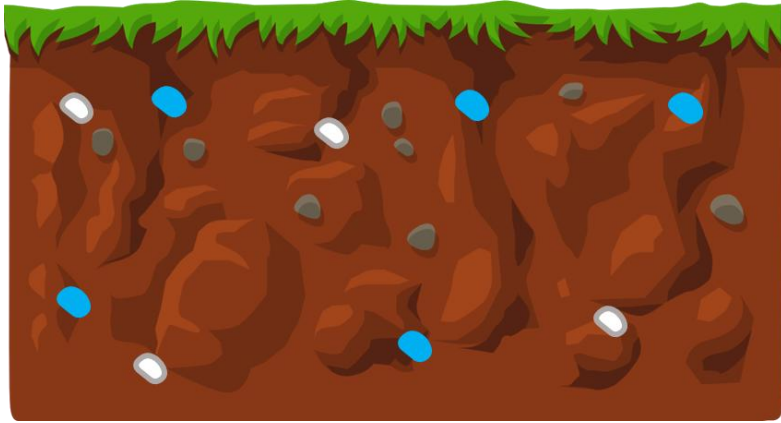


Soil is not just dirt.



Soil is very important!

Soil is a mixture of many things.



The soil includes organic matter, minerals, gases, liquids and living creatures.

Soil provides a home and food for plants to grow.



Soil provides homes for worms, bugs and helpful microbes.



Soil helps to collect and clean water.



Soil also collects air.

Growing plants take nutrients and other good things out of the soil.



It is important to protect the soil.

Farmers, scientists, engineers and entrepreneurs all work to keep the soil strong and nutritious.



Composting is one way people can help the soil.

Composting adds nutrients back to the soil.

What makes soil special?

Soil is very important. Can you write about or draw a picture showing why soil is important?



- ✓ Humus
- ✓ Topsoil
- ✓ Subsoil
- ✓ Water
- ✓ Nutrients



Investigation

What Do We Need?

What you need

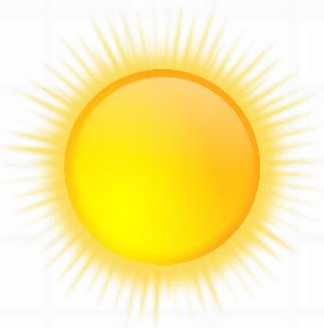
- ✓ Cups
- ✓ Soil
- ✓ Seeds
- ✓ Marker
- ✓ Water



What do you think plants need to grow?

In this investigation we will change the amount of



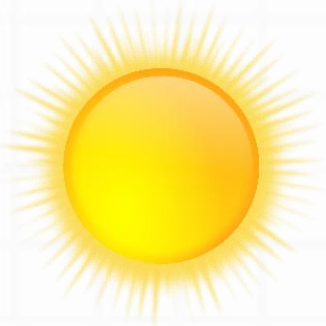




We will change the amount of water by



We will change the amount of light by

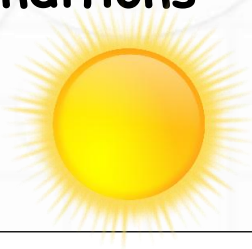


We will change the amount of food by



Date: _____

My Experimental Conditions



We will watch our plants grow for _____

We will make observations on: 

Monday Tuesday Wednesday Thursday Friday

This is a picture of my
experiment at the start.

Include

- ✓ Container
- ✓ Soil or sand
- ✓ Seeds



Date: _____

Date	What I Did	What I Saw



Date: _____



Date	What I Did	What I Saw

Date: _____

Date	What I Did	What I Saw









Class Observations



Date: _____

Use the table below to draw pictures or write about the plants grown under different conditions.

Conclusions

Draw and label the biggest plant.

Include

- ✓ Leaf
- ✓ Stem
- ✓ Roots
- ✓ Seeds

Discussion

What do you need to survive?

What does a dog or cat need to survive?

Meet Serg Albino and Ian Doromal, Co-Founders of ecoSPEARS

ABOUT SERG AND IAN



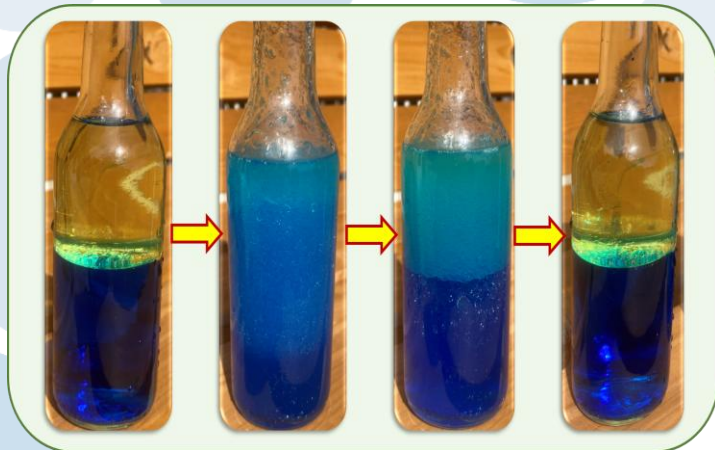
ecoSPEARS

Photo courtesy of ecoSPEARS

Serg was an engineer at NASA when he met Ian. They both wanted to help the environment.

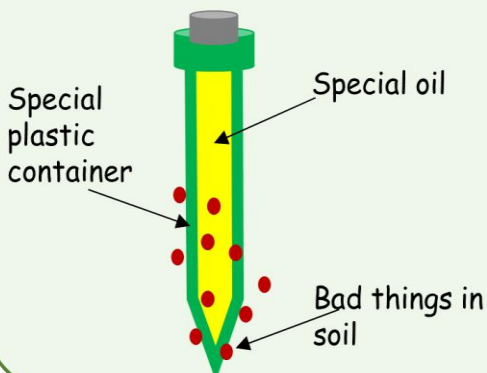
BASIC SCIENCE

Oil and water do not mix.



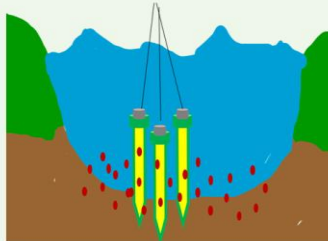
GAME-CHANGING IDEA

An ecoSPEAR



How It Works

Bad things in soil and water go into special oil.




The ecoSPEARS pull the bad things out of the soil. This cleans the soil.

How does ecoSPEARS help soil?



Why does the soil need to be cleaned?



Meet Virginia Emery, Co-Founder of Beta Hatch

ABOUT VIRGINIA



Virginia loves bugs and insects.

BASIC SCIENCE

Growing plants to feed farm animals removes a lot of nutrients from the soil.



GAME-CHANGING IDEA



Virginia grows insects, instead of plants, to feed farm animals to help protect the soil.

How does Beta Hatch use bugs to protect soil?



Meet Jeremy Lang, Co-Founder of Pela and Lomi

ABOUT JEREMY



When Jeremy was young he saw how much food people wasted.

BASIC SCIENCE

Food waste has nutrients that would help soil but it often ends up in the garbage.

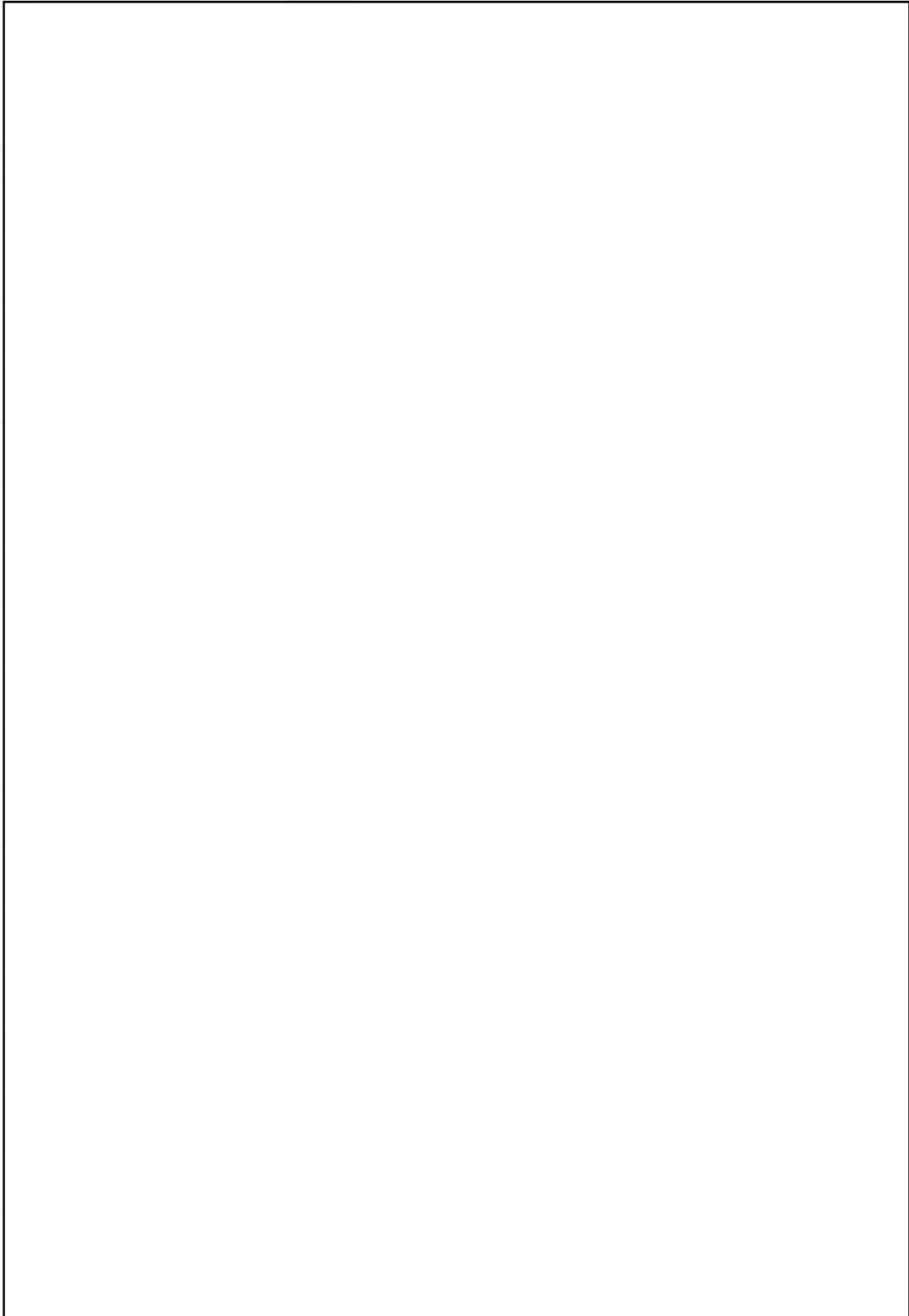


GAME-CHANGING IDEA



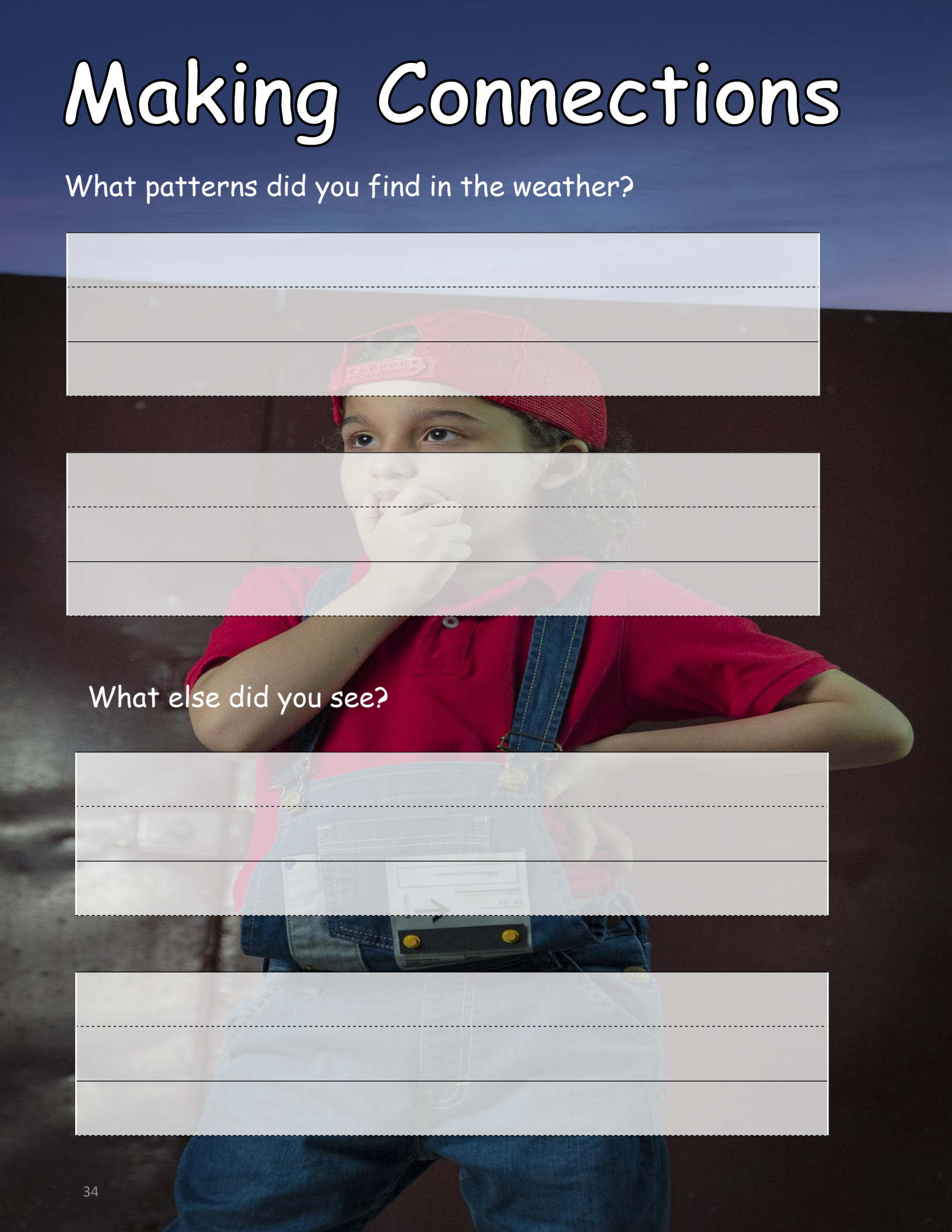
Jeremy and his team invented a fast-composting machine that can turn food waste into soil overnight.

How do Jeremy and Lomi put nutrients back into the soil?



Making Connections

What patterns did you find in the weather?



Three horizontal writing lines for the first question: a solid top line, a dashed middle line, and a solid bottom line.

Three horizontal writing lines for the second question: a solid top line, a dashed middle line, and a solid bottom line.

What else did you see?

Three horizontal writing lines for the third question: a solid top line, a dashed middle line, and a solid bottom line.

Three horizontal writing lines for the fourth question: a solid top line, a dashed middle line, and a solid bottom line.

What does the sun do?

What does the rain do?

Can you have too much rain?

Can you have too much sun?

What do plants and animals need to survive?



How might the weather make it hard for plants and animals?

Can you design a device to help with too much sun?

A large, empty rectangular box with a thin black border, intended for a student to draw a device that could help with too much sun. The box occupies most of the page below the question.

Need more space? Draw a second version here.

