Science of Spring

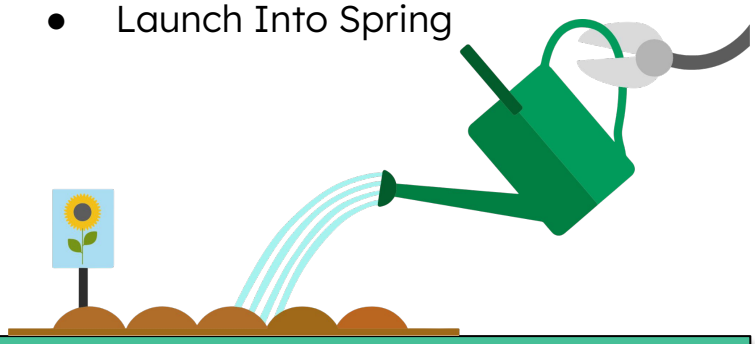
K-5 Activities

It's March, and that means spring is near! This season is full of sunshine, rain showers, flowers, and chances to learn about science.

In this packet, you'll explore how plants grow, how animals prepare their homes, and how energy and movement show up all around us. Through hands-on experiments, creative building, and fun challenges, you'll investigate the tiny changes that make spring such a busy, exciting time in nature.

This packet includes...

- Exploring Bird Nests
- Build a Bug Hotel
- Discovering Photosynthesis
- Growing With Geometry
- Geometry Garden Challenge
- Frog Jump Origami
- Spring Word Search
- Launch Into Spring



Explore More

Watch one of these nature documentaries as a family! What exciting plants, animals, and environments will you learn about?

Wings of Life - Celebrate the flowers and pollinators that keep our world buzzing! As you watch, discuss: What pollinators live in your neighborhood? How could your family help them thrive?

Backyard Wilderness - Follow along as a family discovers the natural world outside their door! As you watch, discuss: How are the plants and animals similar to or different from the ones where you live?

National Parks Adventure - Join three adventurers as they explore U.S. national parks to climb, raft, hike, and bike! As you watch, discuss: Which national parks are in your state? Which would you like to visit?

Birds build homes called nests. A nest keeps eggs safe and warm. Birds use grass, sticks, leaves, and mud to build their nests.

Some nests are high in trees. Some nests are on the ground. Some nests hang from branches.

Birds pick safe places for their nests. They hide them from rain and from other animals. When the eggs hatch, the nest helps keep the baby birds safe.

Build a Nest

Try to build your own nest, just like a bird! Choose safe materials from home or outside.

<u>Household Materials</u>

- Yarn or string
- Paper strips
- Cotton balls
- Craft sticks
- Scrap fabric
- Tape or glue

<u>Nature Materials</u>

- Twigs
- Grass
- Leaves
- Moss
- Feathers
- Mud

If you'll be using nature materials, go on a nature walk outside! Collect items from the list for your nest.

Directions:

1. Use your materials to make a round shape.

2. Build up the sides like a bowl.

3. Add soft material inside to make a cushion for the eggs.

Birds build nests to protect their eggs and raise their babies. A nest keeps eggs warm and helps keep them from falling. Birds gather materials like twigs, grass, mud, and feathers. They work carefully to build a nest that is strong and safe.

Different birds build different kinds of nests. Many small birds make round nests shaped like cups in tree branches. Large birds build wide, flat nests made of thick sticks. Some birds hang their nests from branches. Other birds build nests in holes in trees or make small dips in the ground.

Where a bird builds its nest depends on where it lives. Birds near water may build in tall plants. Forest birds may build high in trees. Birds that nest on the ground use colors that blend in so their eggs are hard to see. Each nest is built to help the bird and its young survive.

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Test Your Nest

After building your nest, put it to the test! Place three small “eggs” (rocks, pom-poms, or paper balls) inside your nest before testing.

Test 1: The Shake Test

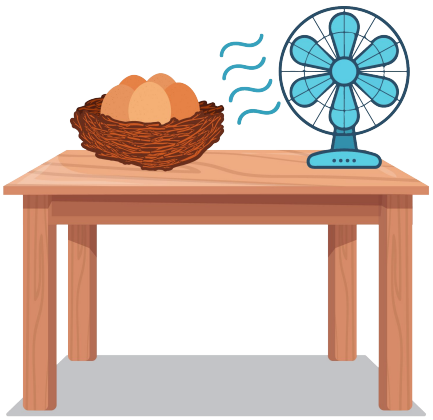
Place your nest on a table.
Gently shake the table for five seconds.

Did the nest stay together? Yes No

Did the eggs stay inside? Yes No

Test 2: The Wind Test

Blow air toward the nest or use a fan on low speed for five seconds.



Did the nest stay together? Yes No

Did the eggs stay inside? Yes No

Reflect

Do you think it is easier or harder for birds to build a nest than for you? Why?

_____

_____

_____

What Is a Bug Hotel?

Believe it or not, bugs can be helpful! By giving them a place to live and grow, you can bring helpful bugs back to where you live by giving them a place to stay!

Bug hotels give bugs a home when their habitat, or place they used to live, is removed by clearing trees or building houses and stores. These bugs can keep unhelpful pests away and make nature more diverse.

Making Your Own Bug Hotel

To get materials for your bug hotel, all you need to do is go outside! Visit a local park, go for a hike, and get creative! As you get materials for your bug hotel, use these questions and the space below to draw your design.

Materials:

- Sticks
- Leaves
- Cardboard
- Small pots
- Toilet paper rolls
- Wood chips
- Rolled up paper
- Pieces of bark
- Branches or logs

Questions To Consider

What materials can go outside without being damaged by wind or rain?

What materials do you think bugs will like best?

What will you build your bug hotel in?

Draw a picture of your design:

Building Your Bug Hotel

Step 1: Choose the Base
Use a box, crate, or small pot for the base of your hotel.

*Tip: Make sure it can stay outside!

Step 2: Fill Your Base
Put sticks, bark, pinecones, and leaves inside.

*Tip: Give bugs small spaces to hide! Take a look at the pictures below for ideas.

Step 3: Find a Safe Space
Put your hotel in a dark, quiet spot, such as near a woodpile, in a garden, or under a bush or tree.

*Tip: If you don't have space near your home, ask an adult about talking to the park service. You may be able to set your bug hotel up at a local park!

Now that your hotel is set up, you'll start getting some visitors! With an adult's help, use the internet to research what bugs are visiting, or check out a bug guide from your local library!

Have you ever wondered what plants do in the sunlight? They may not move like animals, but they are busy at work. Try this experiment to discover what plants do with sunlight and water!

Supplies:

- Fresh leaves from a tree or plant
- Clear bowl or container
- Room temperature water
- Small, heavy objects to weigh leaves down, like rocks or marbles

Setting Up:

1. Collect leaves from a tree or plant. Ask a grown-up for permission before picking leaves, and only collect a few so the plant stays healthy.
2. Fill the clear bowl or container with room temperature water.
3. Gently place the leaves in the water in a single layer. Make sure they are fully covered by water.
4. If the leaves float, place a small, heavy object on them to help hold the leaves under the water.
5. Put the bowl in a sunny spot. Wait for two to three hours.

Make Observations:
After waiting two to three hours, look closely at the leaves. Write or draw what you notice.

What happened?
Plants make their own food with a process called **photosynthesis**. Plants use sunlight, water, and carbon dioxide from the air. They use these to make their own food!

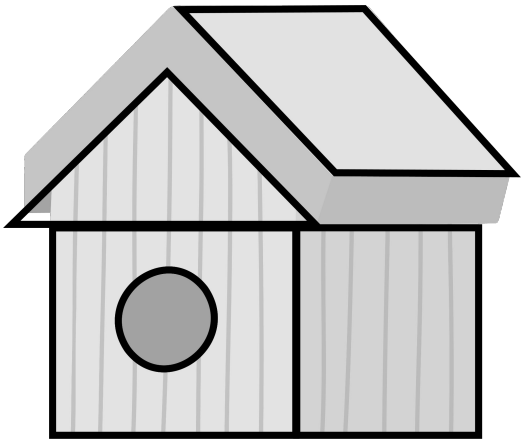
As plants make their food, they also make **oxygen**. When they make more oxygen than they need, the extra oxygen leaves the leaf.

Because your leaves were underwater, the extra oxygen formed **bubbles**.

You just saw photosynthesis in action!

Let's get our garden ready for spring!

Spring is coming, and it's time to prepare the garden. A new bird is looking for a home, and flowers are ready to bloom. Let's help get everything ready!



Materials:

- Crayons or markers
- Scissors and glue (optional)

Color the birdhouse to welcome a new bird!

- Color the rectangles **purple**.
- Color the circle **blue**.
- Color the triangle **green**.
- Color the diamond **orange**.

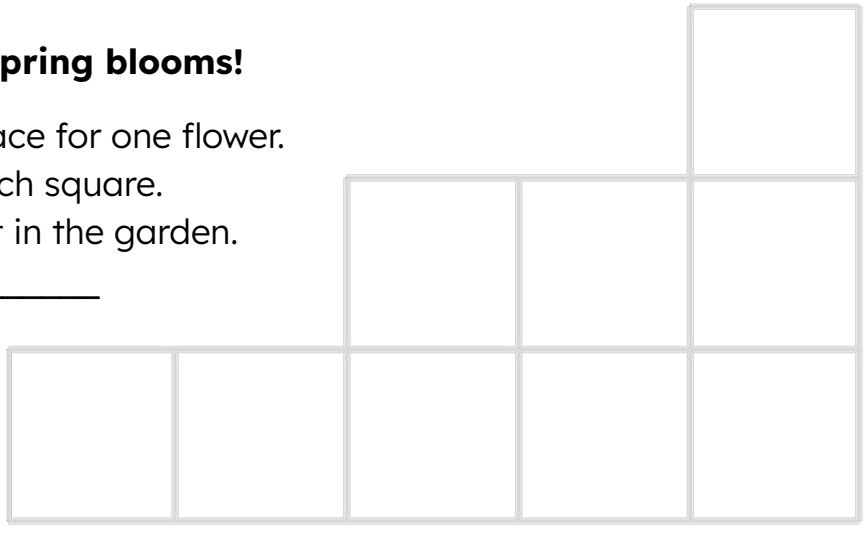
If you would like, use the space here to draw a bird that might live in the birdhouse.

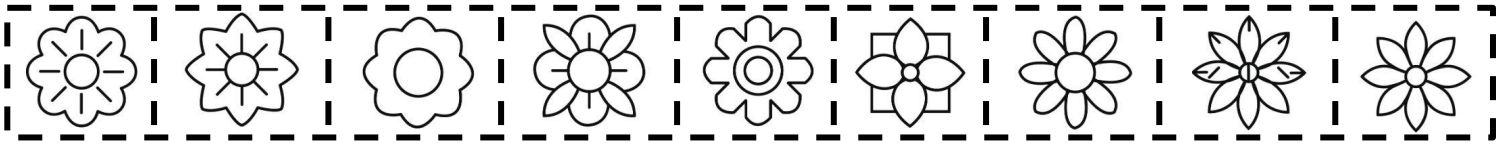
Prepare the flower bed for some spring blooms!

Each square in the garden shows space for one flower.

- Draw or paste one flower in each square.
- Count how many flowers will fit in the garden.
- Write the total number here: _____

Optional: Color the flowers in a pattern (for example, red, yellow, red, yellow).



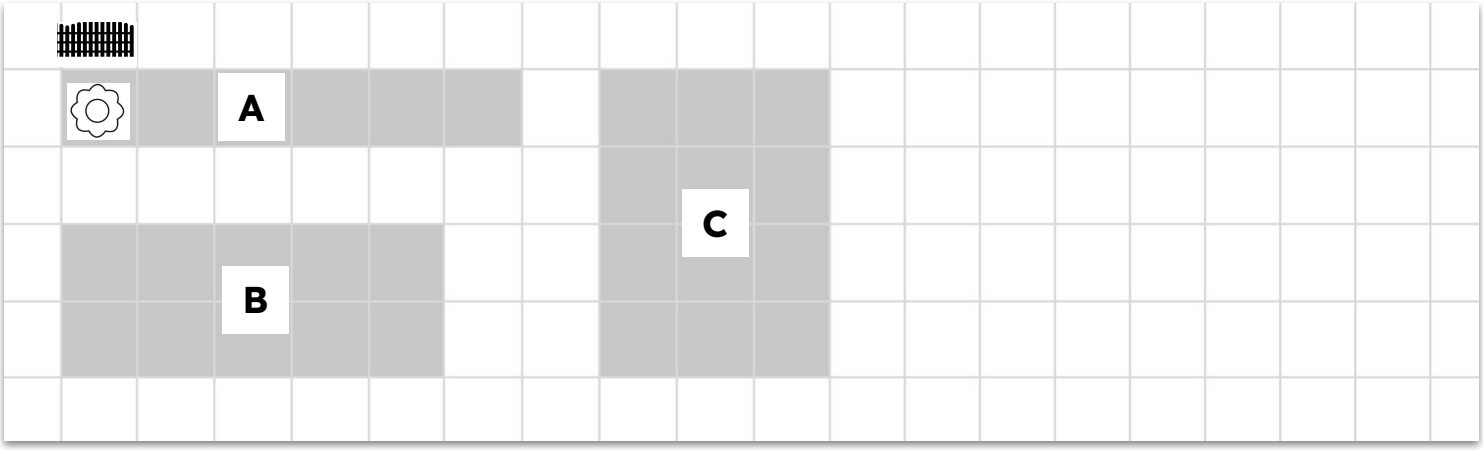


Spring is coming, and it's time to plant flowers!

Count the Flowers and Fence Pieces

Each square inside the garden beds below shows space for one flower. Each garden bed is surrounded by 1-foot fence pieces.

Use the chart to record how many flowers fit in each bed and the number of fence pieces needed to surround it.



	Bed A	Bed B	Bed C
Number of flowers			
Number of fence pieces			

Think About It

Which bed can fit the most flowers?

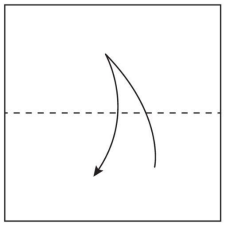
What do you notice about the fence pieces? Why do you think the beds do not hold the same number of flowers?

Optional Challenge

Draw a different garden bed that still uses 14 fence pieces. (Your garden does not have to be a rectangle.) How many flowers can it hold?

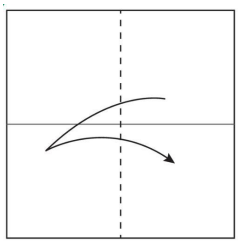
Origami is the Japanese art of folding paper to create objects such as flowers or animals. Follow the directions below to turn a piece of paper into a jumping frog! Create your frog with a trusted adult to help you make each fold.

1



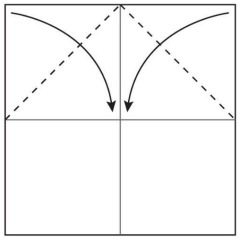
Fold the paper in half by making the top and bottom edges of the paper meet. Then, unfold the paper back into the square.

2



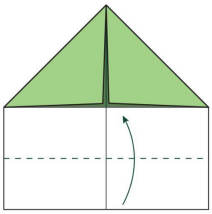
Fold the paper in half again by making the right and left edges of the paper meet. Then, unfold the paper back into the square. You should now see a plus sign crease in the middle of the paper.

3



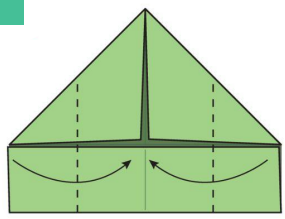
Fold the top left and right corners of the paper in so they meet the center of the plus sign. This will create two diagonal lines.

4



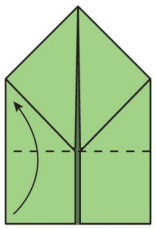
Fold the bottom edge of the paper up to meet the bottom of the two corners you folded in Step 3.

5



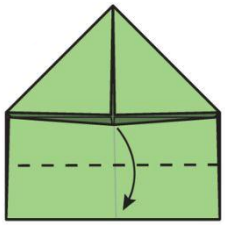
Fold in the right and left edges to meet in the middle of the paper.

6



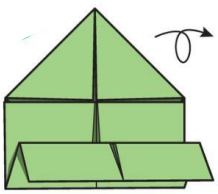
Fold the bottom edge of the paper about halfway up to meet the ends of the diagonal lines created in Step 3.

7



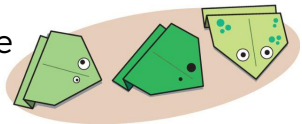
Fold the same section from Step 6 back down, splitting it in half.

8



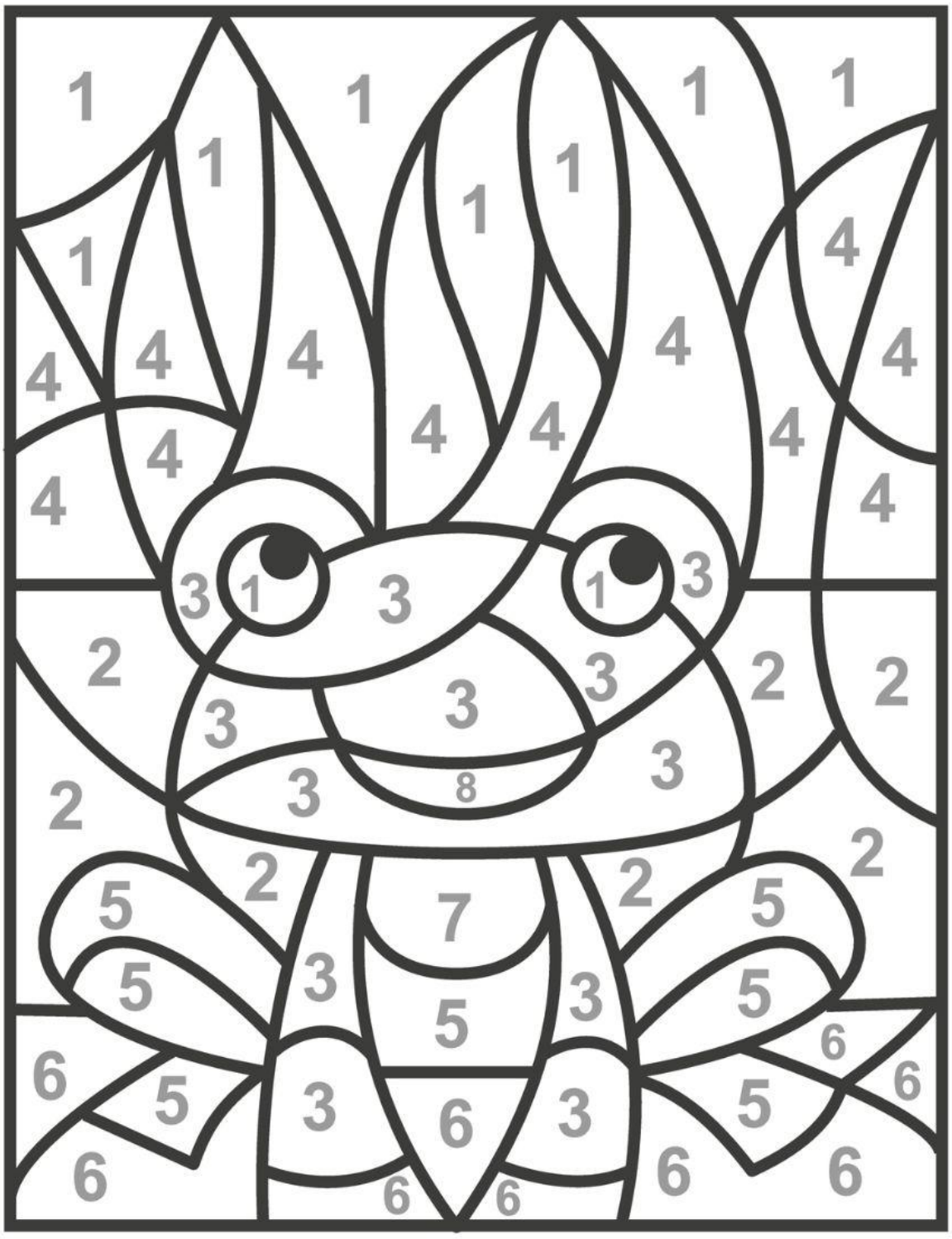
Flip your paper over and press down on the back to see your frog jump.

Add eyes and decorate your frog.



Directions: Using the key, color in each number to reveal a frog-themed picture.

KEY
1: Light Blue
2: Blue
3: Light Green
4: Green
5: Dark Green
6: Brown
7: Yellow
8: Red



Directions: Look for the following spring-themed words in the word search. Search up, down, left, right, and even diagonally. You may recognize these words from other activities in this packet!

Word Bank				
spring	flowers	bird	nest	habitat
eggs	leaves	garden	sunshine	rain

b r a i n p b i g s

i d l f a h i l n u

f k s l g a r d e n

n e t o e b d n g s

e g c w r a i e z h

v g n e t r v o t i

o s p r i n g e r n

t g l s i p e t s e

g p m g a r o s u n

g s h a b i t a t s

In this activity, you will design and build a cotton ball launcher. Act like an engineer as you build, test, and improve your design to make a cotton ball travel as far as possible.

Read through all instructions and get permission from a guardian before you begin!

Materials:

- 10 craft sticks
- 5-10 rubber bands
- Spoon
- Cotton balls
- Ruler or measuring tape (optional)

Instructions:

1. Stack five craft sticks. Wrap a rubber band around each end to make your base.
2. Stack two craft sticks and wrap a rubber band around **one end only**. This is your throwing arm.
3. Slide the big stack (stack of five) in between the two sticks of the throwing arm. Push it until it almost reaches the rubber band. This will create a lever.
4. Attach the spoon to the top stick with one to two rubber bands. The bowl of the spoon should stick out past the base.
5. Place a cotton ball on the spoon. Hold the base down on a flat surface. Press down on the bowl of the spoon and release to launch.
6. Test your launcher.
    a. Which direction did the cotton ball go?
    b. How far did it travel? Measure, if you can.
7. Improve your design by changing one thing at a time before testing again. Try to get your ball to go as far as possible. Some changes you could test:
    a. Make the stack of craft sticks bigger or smaller
    b. Move the large stack of craft sticks closer or further from the rubber band holding your throwing arm together
    c. Use a lighter or heavier spoon

Share your results! Engineers and scientists share what they learn. Once you get your cotton ball as far as you can, make sure you show off your awesome design!