

# Hello families!

So your kids can't go to school and you want something positive, educational, and practical to do with them? We can help!

**Science** isn't confined to classrooms and research labs. It's everywhere! The following activities touch on all major science content areas and are designed to engage children preschool through third grade in hands-on, minds-on, cross-curricular science inquiries – with materials and resources likely available at home. Engagements can be as simple or complex as your children (or you) need or want them to be, and we have included possible extensions for deeper inquiry.

What new things can you learn? How can you deepen the knowledge you already have? What new questions can you ask? Let's find out!

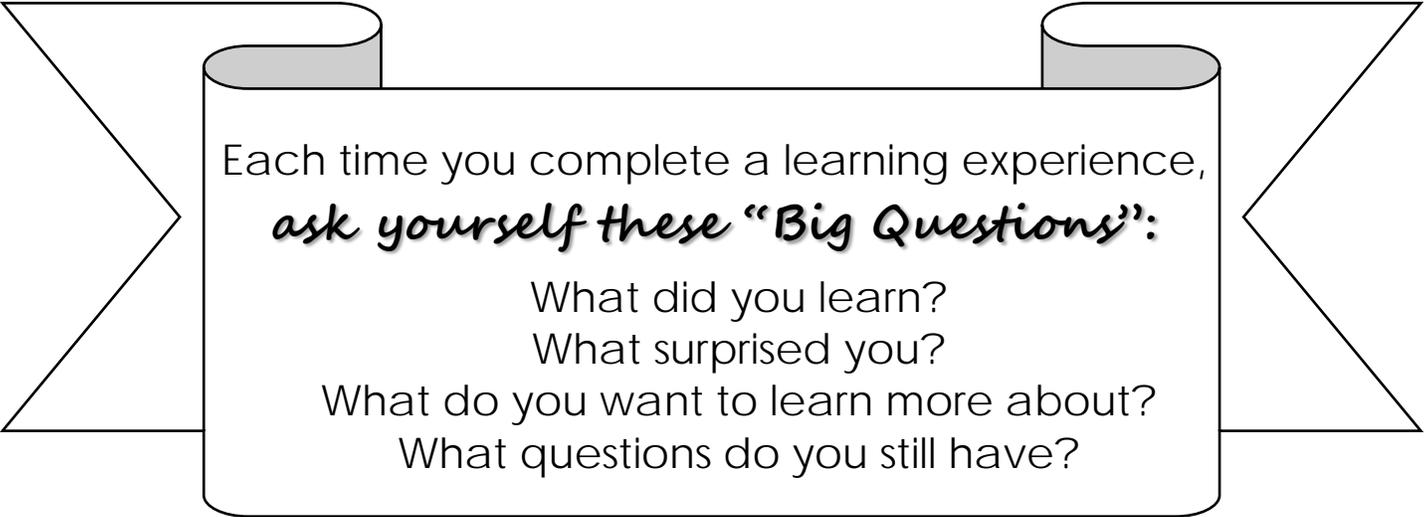
What is included:

**Biology** Let's go on a scavenger hunt outdoors! What can you find?

**Chemistry** Let's go on a scavenger hunt indoors! What can you find?

**Earth Science** Let's talk about the weather!

**Physics** Let's explore how things move!



Each time you complete a learning experience,  
**ask yourself these "Big Questions":**

What did you learn?

What surprised you?

What do you want to learn more about?

What questions do you still have?

## Resources brought to you by:

**Dr. Sara Raven** is a professor of science education at Texas A&M University. She has worked in schools in Georgia, Ohio, and Texas, and is passionate about promoting equity in science. Dr. Raven's research focuses on preschool and early elementary science teaching and learning, and she works with undergraduate students, teachers, K-12 students, and families.

**Kelly Baldwin** is a kindergarten teacher in Klein Independent School District in Texas. With nearly 20 years of experience in education, Kelly has a background in classroom education (public and private, in the United States and abroad), non-profit arts education, museum education, and adult education, and interests in early childhood and family advocacy/support and social justice advocacy.

# BIOLOGY

*Let's go on a scavenger hunt outdoors! What can you find?*



## **Materials you will need:**

- an interest in exploring (Required!)
- a nature journal (paper, materials with which to write/draw)
- a camera (optional)

**Before you get started:** Whatever you find, treat it with kindness! Don't touch or move living things; use your eyes to observe them! Record your observations by listing, photographing, and/or drawing your discoveries in a nature journal.



## **Let the fun begin!**

Can you find something:

- green?
- longer than your foot?
- shorter than your thumb?
- with spots?
- that has stripes?
- heavy?
- very light?
- that needs sunlight to live?
- that needs water to live?
- with holes in it?
- the name of which begins with the letter L?
- that smells good?
- that makes a sound?
- that feels soft?
- that feels rough?
- that feels smooth?
- that moves?
- 5 leaves that are different?

Can you group materials that you found into two groups? (Sometimes it can be tricky!)

- living versus nonliving
- heavy versus light
- big versus small
- long versus short
- rough versus smooth
- symmetrical versus asymmetrical
- patterns (stripes, spots, etc.) versus solid colors
- things you like to touch and things you don't
- things you like to look at and things you don't



## **Literature connections:**

- [The Listening Walk](https://www.youtube.com/watch?v=BLs4r8IHUSg) by Paul Showers <https://www.youtube.com/watch?v=BLs4r8IHUSg>



## **Want to learn more?! Here are some options!**

- Take several different leaves/flowers that you found during your scavenger hunt. Put them on a smooth surface under a sheet of paper and do a crayon (or pencil) rubbing. How are the leaf/flower rubbings similar to and different from one other?
- Can you find things outdoors in every color of the rainbow? Photograph or draw them.
- Pick an outdoors spot you can visit or see from your window daily. Watch that spot for a few minutes every day around the same time. What do you observe? What happens in that spot? What do you see, hear, or smell? How do things change from day to day? How do things stay the same?



**What you're learning:** In these activities, participants are observing properties of materials they find outdoors. Most importantly, they're learning about the differences between living and nonliving things. Living things grow, eat, breathe, reproduce, and need space. Learners also develop observational skills and abilities to describe the properties of materials and group them based on those properties.

# CHEMISTRY

Let's go on a scavenger hunt indoors! What can you find?



## Materials you will need:

- an interest in exploring (Required!)
- a research journal (paper, materials with which to write/draw)
- camera (optional)



## Let the fun begin!

Record your observations by listing, photographing, and/or drawing your discoveries in a research journal. Can you find something:

- that rolls?
- with letters on it?
- with numbers on it?
- red?
- hollow?
- bumpy?
- smaller than your hand?
- bigger than your head?
- metal?
- warm/hot? (adult supervision required)
- cold?
- you can see yourself in?
- you can see through?
- with more than 3 colors?
- wet?
- dry?
- that makes you happy?
- the name of which begins with the letter E?
- that makes a sound?
- that smells bad? (Ew!)
- 2 things that match?
- 5 different shoes?

Can you group materials that you found into two groups? (Sometimes it can be tricky!)

- hot versus cold?
- heavy versus light?
- solid versus liquid?
- magnetic versus non-magnetic? (Test with a magnet.)
- sinks versus floats in water? (Try working in the kitchen sink.)
- things you like to touch and things you do not like to touch?
- things you like to look at and things you do not like the look at?



## Literature connections:

- [Ada Twist, Scientist](https://www.youtube.com/watch?v=k4WLYPovczc) by Andrea Beaty



## Want to learn more?! Here are some options!

- Do you have cornstarch and water? Pour some cornstarch into a large bowl. Add water a little at a time and mix together. (It may be hard to mix, so adults may need to help). You will know the mixture is done when it's hard to press but oozes when held. Is this a solid or a liquid? (Digital resource: SciSchow Kids "Let's Make Oobleck!" (4:52) <https://www.youtube.com/watch?v=nw8KaHgl0kQ>)
- Do you have salt and pepper? Combine some of each in a bowl. How can you separate the salt and pepper again quickly? (Hint: Try adding water. What happens? Why?)



**What you're learning:** In these activities, participants are learning about the physical properties of matter. Some of these properties are temperature, magnetic versus non-magnetic, sinking versus floating (density), heavier versus lighter (mass), and the state of matter (solid, liquid, and gas). Students are also figuring out how to observe and describe the properties of everyday objects and group them based on those properties.

# EARTH SCIENCE

## Let's talk about the weather!



### Materials you will need:

- a weather journal (paper, materials with which to write/draw)
- a camera (optional)



### Let the fun begin!

For this activity, you will observe the weather and the night sky every day for 5 or more days. Try to go out once during the day and once at night. Record your observations by listing, photographing, and/or drawing your discoveries in a weather journal.

Think about these ideas and questions:

- Temperature: Is it hot or cold outdoors? How do you know?
- Wind: Is the air windy or still? How do you know?
- Clouds: Are there clouds in the sky? What do they look like?
- Precipitation: Is it dry or wet out? If wet, is it raining, snowing, sleet, hailing, etc.?
- Sunshine: Can you see the sun? If so, can you see it clearly?
- Moon: Can you see the moon? If so, can you see it clearly? What shape is it?
- Stars: Can you see the stars? Do you recognize any constellations? Where in the sky?

Look at the data you've collected (your observations and notes). What do you notice?

- When it is hot outdoors, is it sunny or cloudy? Why?
- When it is cold outdoors, is it windy or still? Why?
- When it is cloudy during the day, can you see the sun? If not, where is it?
- When it is cloudy at night, can you see the moon or stars? If not, where are they?
- When there is precipitation, are there clouds in the sky? Why?
- What do you notice about the shape of the moon over time?
- How is the temperature during the day different from the temperature at night? Why?



### Literature connections:

- [Come On, Rain!](https://bookflix.digital.scholastic.com/pair/detail/bk0018pr/start?authCtx=U.600098662) by Karen Hesse and [Rainy Weather Days](https://bookflix.digital.scholastic.com/pair/detail/bk0018pr/start?authCtx=U.600098662) by Pam Rosenberg
- [The Snowy Day](https://bookflix.digital.scholastic.com/pair/detail/bk0004pr/start?authCtx=U.600098662) by Ezra Jack Keats and [Snowy Weather Days](https://bookflix.digital.scholastic.com/pair/detail/bk0004pr/start?authCtx=U.600098662) by Katie Marsico
- [Stars! Stars! Stars!](https://bookflix.digital.scholastic.com/pair/detail/bk0043pr/start?authCtx=U.600098662) by Bob Barner and [Looking Through a Telescope](https://bookflix.digital.scholastic.com/pair/detail/bk0043pr/start?authCtx=U.600098662) by Linda Bullock



### Want to learn more?! Here are some options!

- Want to make your own weather station? Click the link and follow the instructions!  
[https://aamboceanservice.blob.core.windows.net/oceanservice-prod/education/for\\_fun/BuildyourownWeatherStation.pdf](https://aamboceanservice.blob.core.windows.net/oceanservice-prod/education/for_fun/BuildyourownWeatherStation.pdf)
- Continue to observe the shape of the moon each night for at least one month. Write or draw your observations on a calendar. What do you notice? What happens over time?



**What you're learning:** In these activities, participants are learning about weather and the day/night sky. Through their explorations, they gain increased understanding of the interrelationships between temperature, wind speed and direction, clouds, and precipitation. Drawing connections between and across these weather and sky characteristics is important for understanding weather and astrological patterns over time.

# PHYSICS

## Let's explore how things move!



### Materials you will need:

- a science journal (paper, materials with which to write/draw)
- things that roll (balls of any kind, toy cars, paper tubes, crayons/pencils, etc.)
- ramps (books propped up on/against things, slides, car ramps, etc.)
- a way to measure time (Smart phones typically have a built-in timer.)
- a way to measure distance (a ruler, measuring tape, string, etc.)
- tape (optional)



### Let the fun begin!

1. Find or build a ramp. A ramp is a flat surface that has an incline.
2. Place an object that rolls at the top of the ramp and hold it there.
3. Get your timer ready. Start the timer at the same time you release your object. (Don't push your object. Just let go.) Stop the timer when the object stops moving.
4. Measure how far the object rolled from the starting point to the stopping point.
5. Roll the object down the ramp again. The time and distance should be about the same.
6. Now change ONE thing. You could change:
  - the incline of your ramp (Make it more or less steep.)
  - the object you are rolling (For example, try a toy car if you've already tried a marble.)
  - how heavy the object you're rolling is (If you have a car and a marble, roll the car first, then tape the marble (or a small rock) to the car and roll it again.)
7. Each time you change something, measure and record the time and distance again.

As you experiment, think about these questions:

- What do you notice/observe?
- Why do objects roll?
- How does changing the steepness of the ramp, the object you are rolling, or the weight of the object you are rolling affect the time or distance the object travels?
- How can you apply what you have learned about how things move to your own movement when you bike, skateboard, roller-skate, scooter, ride a sled, etc.?
- How can you make things move faster?
- How can you make them move slower?



### Literature connections:

- Newton and Me by Lynne Mayer <https://www.youtube.com/watch?v=DeAXdsVtlug>



### Want to learn more?! Here are some options!

- Make a pendulum. Tie/tape one end of a piece of yarn to something that does not move but has open space under it (like a table) and one end to small object (a toy, ball, metal washer, etc.). Keeping the string taut, pull the object back and let go. What happens? Why? How can you change the movement? (For more information and details, visit: <https://www.scholastic.com/teachers/lesson-plans/teaching-content/outdoor-activitiesgames-pendulum-play/>)
- Make a balloon rocket. Use a balloon, straw, tape, and yarn and follow these directions: <https://www.youtube.com/watch?v=CzHC0mjk9Bo>. Launch your balloon rocket. What happens? Why? Change the amount of air in the balloon and/or the steepness of the yarn's incline. Test the balloon rocket again. Did the results change? How and why?



**What you're learning:** In these activities, participants are learning about force and motion.

Through their explorations, they gain increased understanding of distance, speed, and how to ask and investigate questions. When conditions are right, speed and distance should increase as mass increases or as the angle of the ramp increases. (If this is not the case, try to discover why!)