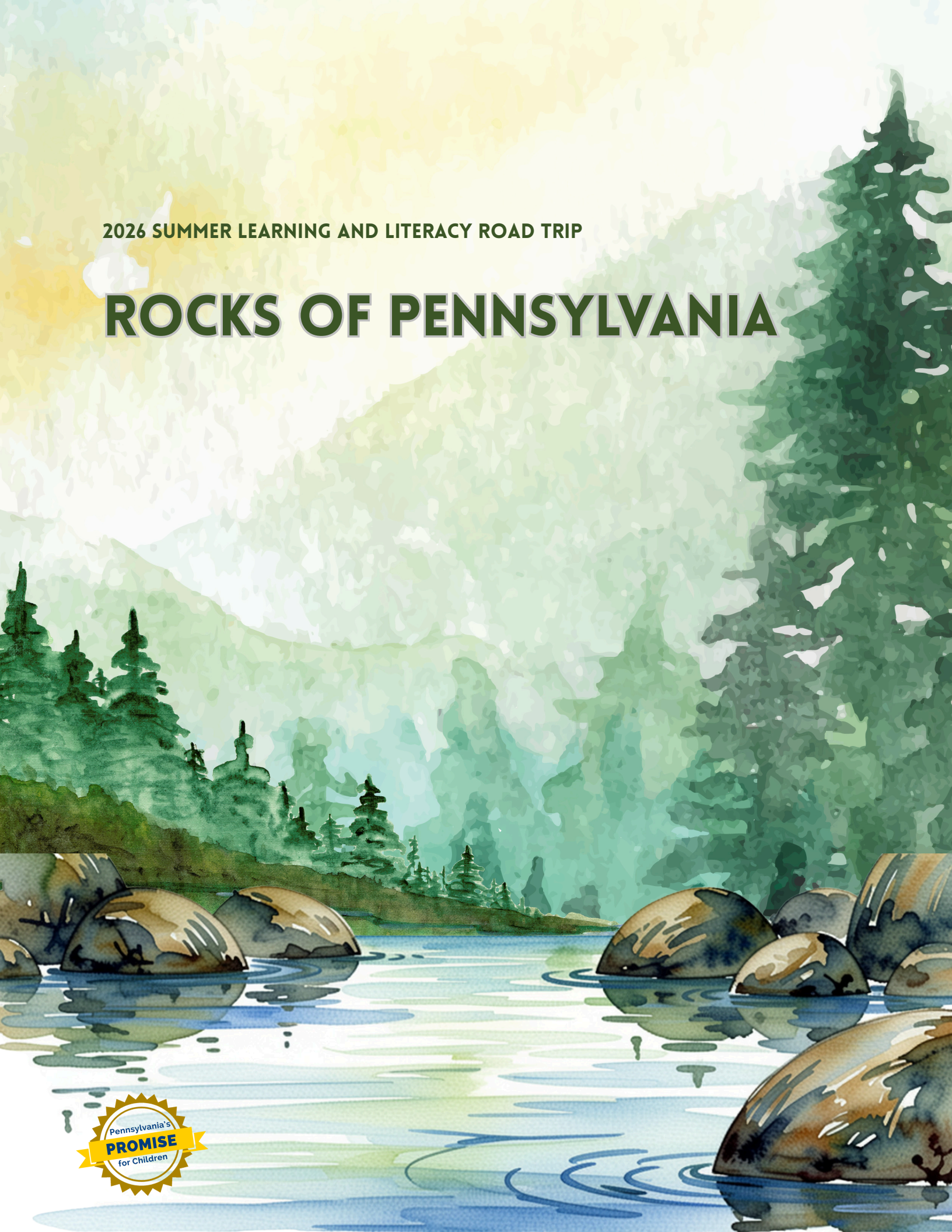


2026 SUMMER LEARNING AND LITERACY ROAD TRIP

ROCKS OF PENNSYLVANIA



EARLY LEARNING ACTIVITIES WITH ROCKS!

Rocks are everywhere and they make wonderful tools for learning, exploring, and having fun together!

This guide, *Early Learning Activities with ROCKS!*, offers simple book ideas and hands-on activities designed to support young children's growth in exciting and meaningful ways. Each activity is thoughtfully connected to the Pennsylvania Learning Standards for Early Childhood, helping families in building their child's important skills in math, literacy, science, social-emotional development, and more.

Families can use this guide anytime and anywhere—at home, in the backyard, at the park, or even on a neighborhood walk. Whether you have a few minutes to play or an afternoon to explore, these activities fit easily into daily routines and encourage children to learn through play, creativity, and discovery.

No special materials are needed—just a few rocks, a little imagination, and time together. By using this guide, families can support their child's early learning while strengthening connections, encouraging curiosity, and making everyday moments meaningful and fun.

ABOUT ROCKS COMMONLY FOUND IN PENNSYLVANIA

Pennsylvania has many different types of rocks because it has a long and exciting geologic history.

Over millions of years, mountains formed, oceans came and went, and glaciers moved across the land. These changes helped create igneous, sedimentary, and metamorphic rocks all in one place. Because of this, exploring Pennsylvania is like looking through a natural history book written in stone!

Explore some of the types of rocks that can be commonly found throughout Pennsylvania!

Coal: Coal was once made from plants that lived millions of years ago, even before dinosaurs! Over a very long time, those plants were buried deep underground and slowly changed into coal.

Where it's found in Pennsylvania: Coal in Pennsylvania is mostly found in the northeast mountains (hard coal) and the western hills and valleys (soft coal).

Did you know...Coal helped Pennsylvania become known as the "Coal State" because it was used to power trains, heat homes, and make steel for many years.





Photo courtesy of Kelsey O'Brien

Pennsylvania Bluestone: A prized flagstone and building material known for its durability and distinctive appearance, quarried in the northeastern part of the state.

Where it's found in Pennsylvania:

Pennsylvania bluestone is mostly found in the mountainy, northeastern part of the state, where there are lots of forests, hills, and old stone quarries. Overall, it is part of the Appalachian Mountains region of Pennsylvania.

Did you know... Pennsylvania Bluestone isn't always blue! It can be gray, green, purple, or brown too! People call it "bluestone" because it often looks bluish when it's freshly cut or wet.

Diabase: Igneous rock, often associated with the striking "ringing rocks" boulder fields. Diabase is often found in rocky hills and ridges, like the ones around Gettysburg, where the hard rock sticks up after softer rocks wear away over time

Where it's found in Pennsylvania: Diabase rock is found in a special band across southeastern Pennsylvania, especially in areas with hills and ridges.

Did you know... Diabase is a very hard rock made from melted lava that cooled under the ground a long time ago! Because it's so strong, people use diabase to make roads, buildings, and even train tracks.



Photo courtesy of Kelsey O'Brien

Crystalline Rocks (Gneiss, Quartzite): Ancient metamorphic and igneous rocks forming ridges, like those found at Hawk Mountain.

Where it's found in Pennsylvania: Gneiss and quartzite are found mostly in the southeastern corner of Pennsylvania, where there are rocky hills and old mountain areas. These rocks are very strong because they were squeezed and heated deep underground long ago.

Did you know...Some rocks, like gneiss and quartzite, are made of tiny crystals that lock together like a puzzle, making them very strong and sparkly! If you look closely, you might even see stripes or shiny pieces in these rocks.



Sandstone, Shale, Limestone: Common sedimentary rocks, with limestone often containing fossils.

Where it's found in Pennsylvania: These rocks are found almost everywhere in Pennsylvania, but especially the Middle of the state → hills and valleys, and the Western part → plateaus and coal areas. They make up most of the state's rocks!

Did you know...Sandstone, shale, and limestone are all made from tiny pieces of sand, mud, or shells that were pressed together over a very long time! Some limestone even has fossils, which are tiny marks or shapes from plants and animals that lived long ago!

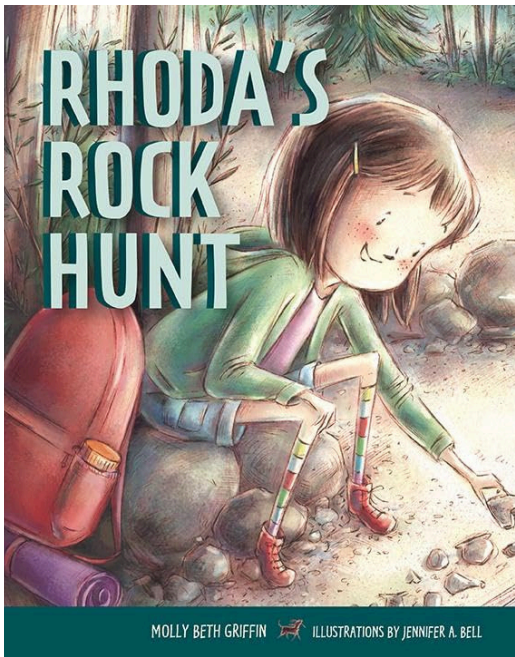


Trilobite-bearing Rocks: Devonian-age sedimentary rocks yielding abundant trilobite fossils, like those in the Mahantango Formation.

Where it's found in Pennsylvania: You find the fossils in places that used to be under the ocean, especially in Middle (central) Pennsylvania and in layered rocks like shale and limestone.

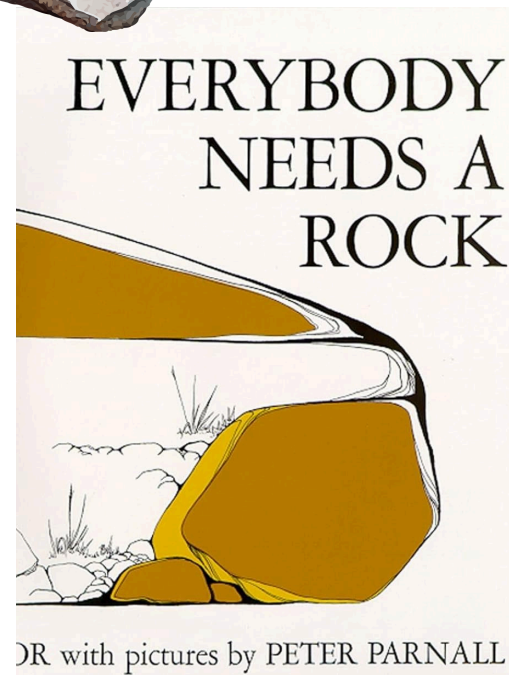
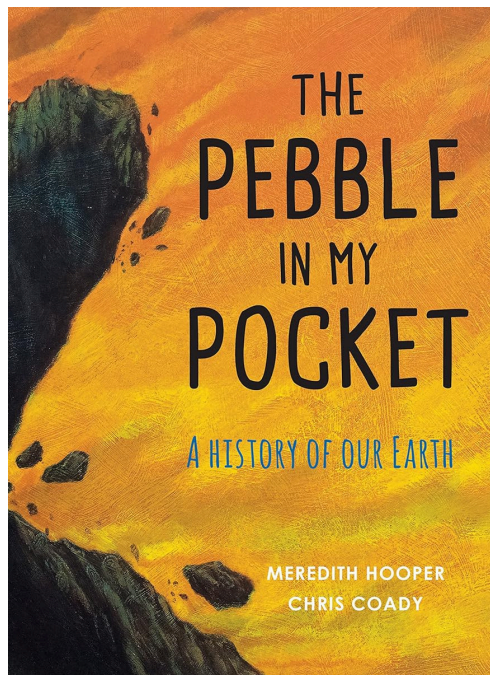
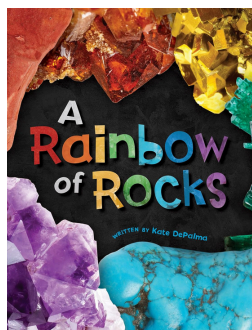
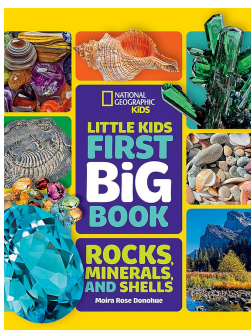
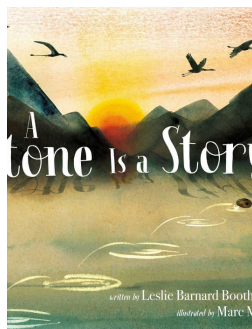
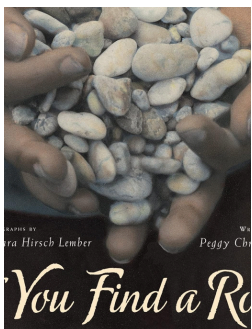
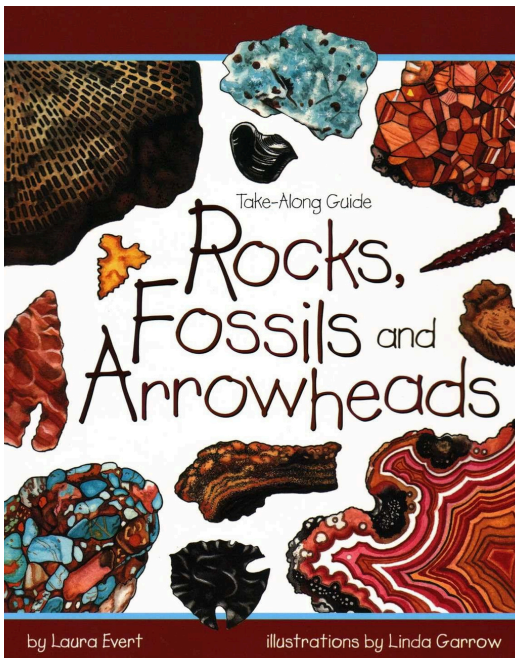
Did you know...Some rocks have fossils of trilobites, which were tiny sea creatures that lived long before dinosaurs, over 500 million years ago! (Trilobites looked a bit like small ocean bugs!) You can sometimes see their body shapes pressed into the rock, like a natural imprint or stamp.





8 BOOKS ABOUT ROCKS

WWW.PAPROMISEFORCHILDREN.COM



8 BOOKS ABOUT ROCKS

Rhoda's Rock Hunt by Molly Beth Griffin, Illustrated by Jennifer A. Bell

Everybody Needs a Rock by Byrd Baylor, Illustrated by Peter Parnall

If You Find a Rock by Peggy Christian, Photographs by Barbara Hirsch Lember

The Pebble in My Pocket: A History of Our Earth by Meredith Hooper and Chris Coady

Rocks, Fossils and Arrowheads by Laura Evert, Illustrated by Linda Garrow

A Stone is a Story by Leslie Barnard Booth, Illustrated by Marc Martin

Little Kids First Big Book: Rocks, Minerals, and Shells by Moira Rose Donohue

A Rainbow of Rocks by Kate DePalma

Visit your local library to find these books and others about rocks!



ROCK EARLY LEARNING ACTIVITY: APPROACHES TO LEARNING THROUGH PLAY

Build & Sort Rock Challenge

Ages: 3-7

What You Need

- A variety of rocks or stones (different sizes and shapes)
- Small containers, boxes, or trays
- Optional: paper, sticks, or blocks

How to Play

1. Sort the Rocks

- Ask your child to organize rocks in their own way: By size, shape, color, or texture
- Encourage them to explain their choices: "Why did you put these together?"

2. Build Something

- Use the rocks to construct something, such as: A tower, A road, A small house or structure
- They can also try stacking, lining up, grouping, or placing the items.

3. Test & Change

- Encourage children to try different ideas: "What happens if we use bigger rocks on the bottom?"
- Let them rebuild and improve their design.

4. Apply What They Learned

- Ask questions like: "What made your tower strong?" or "What worked better this time?"
- They can also explain ideas by talking, pointing, or demonstrating.

Make It Extra Fun

- Work together to build a rock city
- Add toy figures or cars
- Turn it into a teamwork challenge

This activity helps children organize materials, test ideas, solve problems, and apply what they learn through hands-on play, while ensuring all children can participate in their own way.

Approaches to Learning through Play Skills Your Child is Learning:

Problem-Solving

Planning & Organization

Persistence & Focus

Flexible Thinking

Applying Knowledge

Curiosity & Exploration

Decision-Making

Confidence & Independence

ROCK EARLY LEARNING ACTIVITY: SOCIAL-EMOTIONAL DEVELOPMENT

Kindness Rocks Activity

Ages: 3-7

What You Need

- Small rocks or stones
- Markers, paint, stickers, stamps, or crayons
- Optional: stickers

How to Play

1. Create Kindness Rocks
 - Help your child decorate each rock.
 - Add simple kind words or symbols like:
"Kind" "Share" A heart "Thank you"
2. Talk About Kindness
 - Ask: "What does it mean to be kind?"
 - Give examples like helping a friend or sharing toys.
3. Play the Kindness Game
 - Take turns picking a rock.
 - Act out or describe a kind thing you can do that matches the rock.
4. Spread Kindness
 - Place rocks somewhere special:
 - Give one to a friend or family member
 - Leave one for someone to find (with help)
 - Talk about how kindness makes others feel.

Make It Extra Fun

- Create a kindness jar and add rocks over time
- Celebrate when your child shows kindness during the day
- Use rocks as reminders ("Pick a kindness rock for today!")

This activity helps children practice kind choices, empathy, and understanding how their actions affect others. These are all key parts of social and emotional development.

Social-Emotional Skills Your Child is Learning:

Kindness & Empathy

Positive Social Behaviors

Emotional Awareness

Perspective-Taking

Self-Confidence

Communication Skills

Responsibility & Decision-Making

ROCK EARLY LEARNING ACTIVITY: LANGUAGE AND LITERACY

Rock Letter Builders

Ages: 3-6

What You Need

- 10-20 small rocks or stones
- Marker, chalk, or paint
- Paper (optional)

How to Play

1. Make Letter Rocks
 - Write one letter on each rock (focus on a few letters at a time).
 - You can use letters from your child's name to start.
2. Find & Name the Letter
 - Spread the rocks out.
 - Ask your child to pick one and say the letter and its sound (e.g., "B says /b/").
3. Build Simple Words
 - Help your child line up rocks to form short words like: cat, sun, dog
 - Say the word together, sounding it out.
4. Match Sounds to Objects
 - Say a sound (like "sss").
 - Ask your child to find the matching rock ("S").

Make It Extra Fun

- Let your child decorate the rocks using stickers, paint or other craft materials.
- Hide them for a letter treasure hunt.
- Create silly rock words and laugh together!

This playful activity helps children connect letters, sounds, and simple words in a hands-on way.

Literacy Skills Your Child is Learning:

Letter Recognition

Phonemic Awareness (Letter Sounds)

Alphabet Knowledge

Early Spelling Skills

Word Awareness

Sound-Letter Connection (Phonics)

Vocabulary Development

ROCK EARLY LEARNING ACTIVITY: MATHEMATICAL THINKING & EXPRESSION

Rock Counting & Sorting Game

Ages: 3-6

What You Need

10-20 small rocks or stones

A few containers (cups, bowls, or muffin tins)

Optional: marker or chalk

How to Play

1. Count the Rocks
 - o Place the rocks in a pile.
 - o Ask your child to count them out loud as they move each one.
 - o For younger kids, count together.
2. Sort by Size or Color
 - o Have your child group rocks into categories:
 - Big vs. small
 - Light vs. dark
 - o Ask questions like: "Which group has more?"
3. Number Match (Optional)
 - o Write numbers (1-5 or higher) on paper or containers.
 - o Have your child place the correct number of rocks in each one.
4. Simple Addition Fun
 - o Say: "Put 2 rocks here and 3 rocks there."
 - o Ask: "How many are there altogether?"
 - o Let them combine the groups to find the answer.

Make It Extra Fun

- o Let your child decorate rocks with faces or colors.
- o Turn it into a scavenger hunt: collect rocks outside first!
- o Use a timer and make it a game ("Can you sort them in 30 seconds?")

This activity builds early math skills while keeping things playful and hands-on.

Mathematical Thinking and Expression Skills Your Child is Learning:

Counting & One-to-One Correspondence

Sorting & Classifying

Comparing Quantities

Number Recognition

Basic Addition & Early Operations

Fine Motor Skills (Supports Math Learning)

Early Problem-Solving & Critical Thinking

ROCK EARLY LEARNING ACTIVITY: SCIENTIFIC THINKING & TECHNOLOGY

Sink or Float Rock Experiment

Ages: 3–6

What You Need

- A variety of rocks or stones (different sizes/shapes)
- A bowl or tub of water
- Optional: other small objects (leaf, plastic toy, stick)

How to Play

1. Make Predictions

- Show your child each rock.
- Ask: “Do you think this will sink or float?”
- Let them guess before testing.

2. Test the Rocks

- Gently drop each rock into the water.
- Watch what happens together.

3. Observe & Compare

- Talk about results:
 - “All the rocks sank!” “This one fell faster than that one!”

4. Try Other Objects

- Add a leaf or toy and compare:
 - Which float? Which sink?

Make It Extra Fun

- Use a chart with “sink” and “float” columns to sort results.
- Let your child splash and explore safely.
- Turn it into a guessing game!

This hands-on activity introduces simple science ideas like heavy vs. light, materials, and observing results in a fun and engaging way.

Scientific Thinking and Technology Skills Your Child is Learning:

Observation Skills

Making Predictions

Cause and Effect

Comparing & Classifying

Understanding Material Properties

Asking Questions

Recording & Communicating Results (Early

Data Skills)

ROCK EARLY LEARNING ACTIVITY: SOCIAL-STUDIES

Rock Community Builder

Ages: 3-7

What You Need

- Small rocks or stones
- Marker, paint, stickers
- Paper or cardboard (optional)

How to Play

1. Create Community Rocks
 - Draw simple pictures on rocks to represent places or people, such as House, School, Store, Park, Helpers (doctor, firefighter, teacher)
2. Build a Mini Community
 - Arrange the rocks on the ground or paper to make a town.
 - Place roads, buildings, and people where they belong.
3. Talk About Community Roles
 - Ask questions like:
 - "Who works at the school?" "Where do we go to buy food?"
 - Help your child connect each place and person to its role.
4. Act It Out
 - Use the rocks to tell simple stories, like going to school, visiting the park, or helping a neighbor

Make It Extra Fun

- Add toy cars or figures
- Take a walk or look at photos and compare your rock town to your real community
- Let your child rearrange the town and explain their choices

This activity helps children understand how communities work, who helps in them, and how places and people are connected in everyday life.

Social Studies Skills Your Child is Learning:

Understanding Communities

Awareness of Community Roles

Connection Between People and Places

Mapping & Spatial Awareness

Sense of Belonging

Problem-Solving & Planning

Communication & Storytelling

ROCK EARLY LEARNING ACTIVITY: CREATIVE THINKING AND EXPRESSION

Story Stones Art & Imagination Game

Ages: 3-7

What You Need

- Smooth rocks or stones
- Markers, paint, stickers, stamps, or crayons
- Optional: stickers or glue-on materials

How to Play

1. Create Story Stones
 - Help children decorate rocks with simple pictures, such as: A sun, A tree, A house, A person, An animal
2. Pick & Imagine
 - Place the rocks in a small pile or bag.
 - Each child picks 2-3 rocks.
3. Tell a Story
 - Use the pictures to create a simple story:
 - "Once there was a dog who lived by a big tree..."
 - Encourage children to communicate in any way they can: Speaking, Gestures, Acting it out, Pointing to the rocks
4. Share & Celebrate
 - Take turns sharing stories.
 - Celebrate every child's ideas and creativity.

Make It Extra Fun

- Add music or sound effects
- Build a group story together
- Use a favorite rock to inspire the story

Creative Thinking and Expression Skills Your Child is Learning:

Imagination & Creativity

Symbolic Thinking

Storytelling Skills

Expressive Communication

Confidence in Self-Expression

Collaboration & Sharing Ideas

Creative Problem-Solving

Artistic Expression

ROCK EARLY LEARNING ACTIVITY: HEALTH, WELLNESS, AND PHYSICAL DEVELOPMENT

Rock Toss & Move Game

Ages: 3-7

What You Need

- 5-10 small rocks or bean bags
- A basket, bucket, or container
- Open space (indoors or outdoors)

How to Play

1. Set Up the Target
 - Place a basket or container a short distance away. Move the target closer or farther based on ability.
 - Give your child a few rocks to hold.
2. Practice Tossing
 - Have your child try to toss rocks into the container.
 - Encourage them to aim and throw gently. Allow rolling or placing objects instead of tossing.
3. Add Movement
 - After each toss, ask your child to do a fun movement, such as:
 - Jump, clapping, tapping knees, or raising arms three times
 - Spin around, marching in place or rolling shoulders
 - Hop on one foot, turning head or moving arms side-to-side
4. Move Closer or Farther
 - Change the distance to make it easier or more challenging.
 - Celebrate effort, not just success!

Make It Extra Fun

- Create a simple obstacle path to walk before tossing
- Play music while moving
- Take turns as a family

This activity helps children build coordination, balance, strength, and healthy movement habits while having fun and staying active.

Health, Wellness, and Physical Development Skills Your Child is Learning:

Gross Motor Skills

Hand-Eye Coordination

Balance & Body Control

Strength & Endurance

Confidence & Self-Esteem

Body Awareness

Positive Attitudes Toward Physical Activity

Cooperation & Inclusion

EXPLORE MORE!

Check out these resources to explore more of rocks in Pennsylvania!

- [Pennsylvania State Parks](#)
- [Trail of Geology Series](#) (PA Department of Conservation and Natural Resources)
- [State Museum of Pennsylvania](#) (Harrisburg, PA)
- [Montour Preserve Fossil Pit](#) (Danville, PA)
- [PA State Parks, Forests and Geology Interactive Map](#) (PA Department of Conservation and Natural Resources)
- [Geology Education - Resources for Teachers](#) (PA Department of Conservation and Natural Resources)
- [Order a Rock Box](#) (PA Department of Conservation and Natural Resources)
- [County Rock-Type Maps of Pennsylvania](#) (PA Department of Conservation and Natural Resources)
- [Stonework Play, A Gift of Kindness](#) (Community Playthings)
- [DCNR GeoTrail](#)