



Fun with Science Concepts

10 Activities to Help
Children Understand
Simple Scientific Principles

The word *science* may bring to mind men and women in lab coats, working with beakers, burners, and microscopes. It may prompt memories of concepts learned in chemistry, physics, or biology classes, or bring to mind such topics as botany or astronomy. But that clearly is an adult perception of science. And if it's your only perception of science, you might wonder – rightly -- what place the subject has in early childhood education.

Science for young children, however, is not about concoctions in test tubes. It doesn't involve technical terms and scientific formulas. Rather, because science is about exploration, discovery, investigation, and problem solving, it can be said that every young child is a scientist – because their early years are all about exploring and investigating the world around them! Everything children encounter is a mystery or a problem to be solved – a discovery waiting to be made.

The activities here cover simple scientific concepts that young children can explore at an introductory level. They include action and reaction, balance, gravity, machinery, and more.

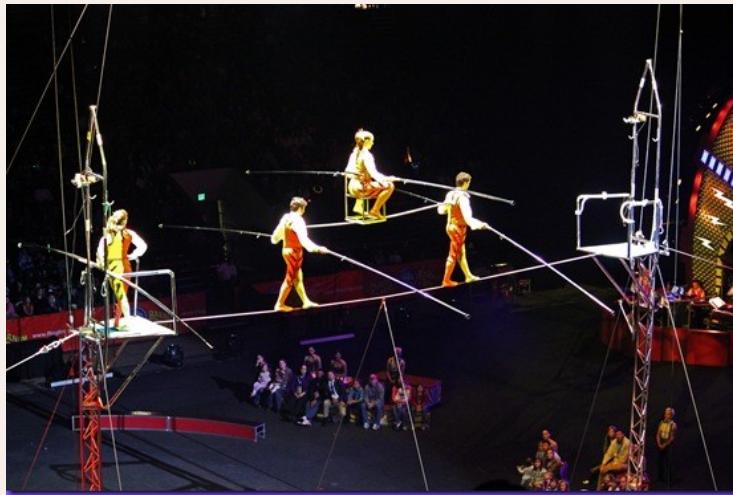
Rock My World



Children intuitively understand that when they exert force on a certain object, they can send it into motion. This activity gives them an opportunity to observe this relationship. Although you won't be quoting Newton's third law of motion – for every action there is an equal and opposite reaction – that's exactly what the children will be experiencing.

The children pair off and sit with the soles of their feet together and hands grasped in front of them. They then rock back and forth, seeing how far they can lower their backs to the floor without touching it.

Walking a Tightrope



Young children enjoy practicing their balancing skills, and if they've ever been to the circus, they'll have double the fun with this activity, which provides practice with dynamic balance: maintaining balance while moving.

Place a rope or masking tape on the floor or, if outside, draw a straight line with chalk. Then invite the children to walk across the line, pretending to be a tightrope walker in the circus.

Once the children feel comfortable walking the tightrope in a forward direction, invite them to try it moving sideways and, finally, backwards.

Take an Air Walk



This simple activity helps children understand that air moves things. It also strengthens the children's powers of observation and provides an opportunity for them to get some exercise!

Go for a walk on a breezy day, inviting the children to look for things that the air is moving. Some possibilities include flags, trees, leaves (both on and off the trees), clothes on a clothesline, and flowers.

Gravity!



Gather some items of varying weights. For example, you might choose beanbags, lightweight balls, and scarves. Then talk to the children about gravity: that it's a force that pulls objects back to Earth.

Invite the children to toss the lightest of the items into the air as "hard" as possible. Does it come back down slow or fast? Does it make any difference how fast it comes down if they don't throw it hard?

Next, try the same experiment with the next-heaviest item, and finally, the heaviest. Of the three items, which came down fastest? Which came down slowest? Why do they think some things came down faster?

Note: It doesn't matter whether or not they know the answer! Thinking about it is what's important.

Up, Up, & Away!



You'll need a bottle of bubbles for this activity.

Explain to the children that some objects can float in the air, similar to the way certain objects can float on water. Invite the children to blow bubbles and watch them float. Invite them to consider what kinds of things float. Are they light or heavy?

Next, you can invite the children to pretend they're a bubble floating gently through the air. Continue to blow bubbles to inspire them as they pretend to float.

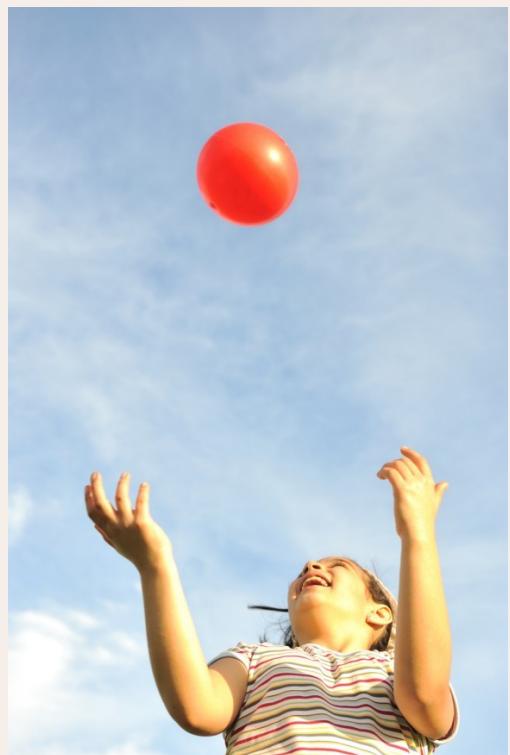
What Goes Up

You'll need one inflated balloon per child for this exploration of air buoyancy and gravity.

Invite the children to toss the balloon into the air and watch it float. Can they make the balloon go higher by throwing it harder?

Next challenge them to catch the balloon as it floats to the ground, trying it at 4 different points: while the balloon is still high in the air, when it's at shoulder-height, when it's at his knees, and when it's almost touching the ground.

This is an excellent exercise in hand-eye coordination!



Sounds All Around



In this activity, the children will explore ways to create a variety of sounds, which are created when things vibrate.

Talk to the children about sounds. What are some of the different ones they hear every day? Then ask them to lightly place their fingertips under the chin and hum. Can they feel their throat vibrating? Now lead them in vowel sounds: A-E-I-O-U. Do the vibrations feel different as they make different sounds?

How can they use their body to make sounds? Possibilities include clapping hands, stamping feet, clucking the tongue, and shuffling feet. Invite them to make both soft and loud sounds.

More Sounds All Around



Invite the children to move around the room, exploring possibilities for making different sounds. For example, knocking on the door will create a very different sound from scuffing a foot on the carpet.

You can also pass an 8-1/2" by 11" piece of paper around, inviting the children to discover how many different sounds can be made with it. Possibilities include crumpling, tearing, flapping, blowing across it, and rubbing it between the palms or on top of the head.

The Force



Invite the children to stand in place and jump as high as possible into the air. Can they think of a way to go even higher? Invite them to try jumping in different ways such as hopping on one foot, making a long jump from one spot to another, or taking a few steps and then leaping. Why do they think they can't stay in the air?

Then talk to the children about astronauts, who float weightlessly in outer space because there's no gravity there. Invite them to pretend to be astronauts floating.

Household Machines

Talk to the children about such household machines as clothes dryers, washing machines, dishwashers, blenders, toasters, vacuum cleaners, and can openers. How do they think they work?

Now invite the children to act out what it would look like to use each of these machines. (For example, they might pretend to load or empty the washing machine or dryer.)

Finally, invite them to act out what it would look like to *be* each of these machines!



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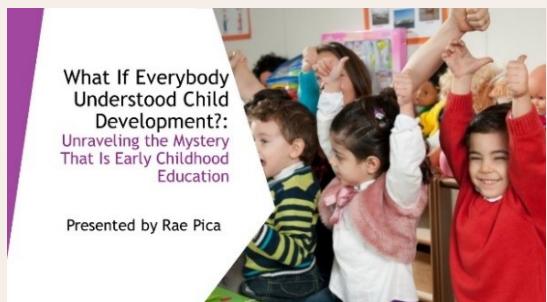
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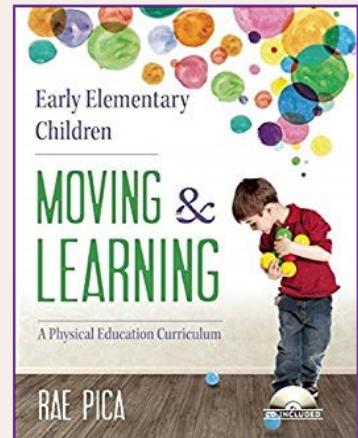
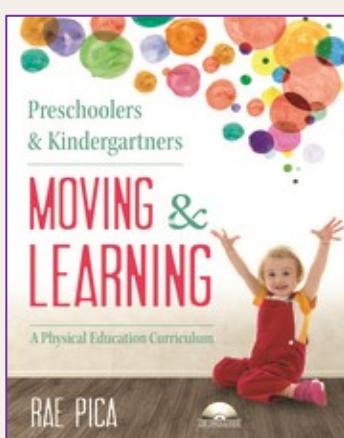
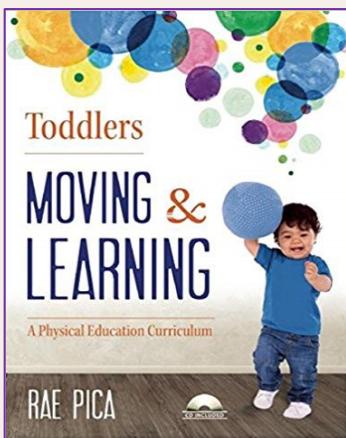
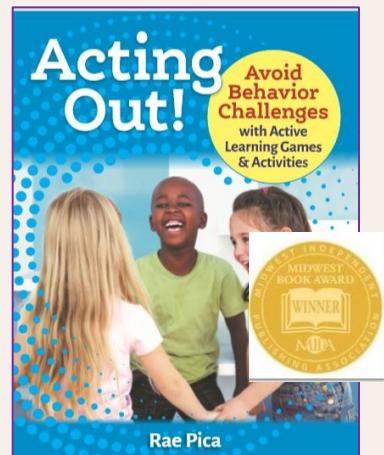
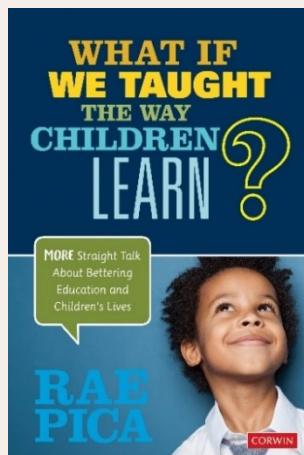
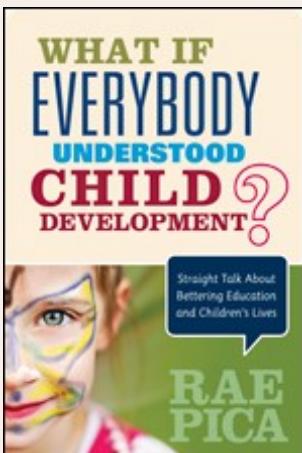
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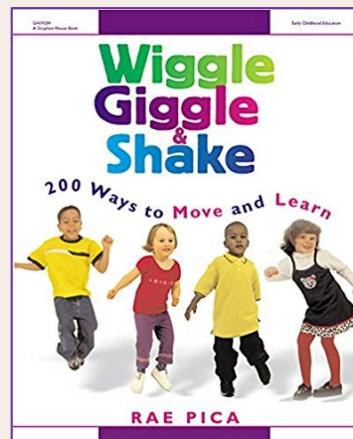
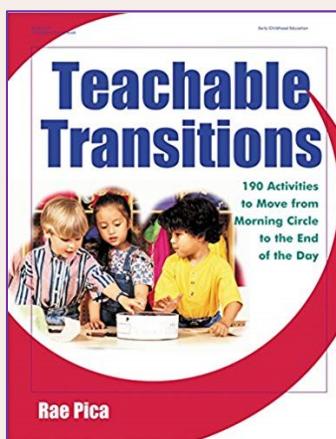
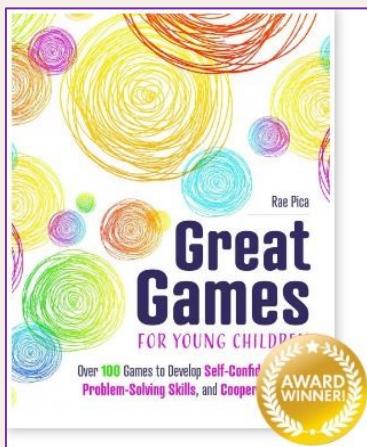
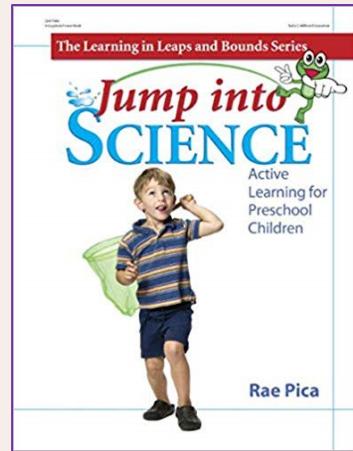
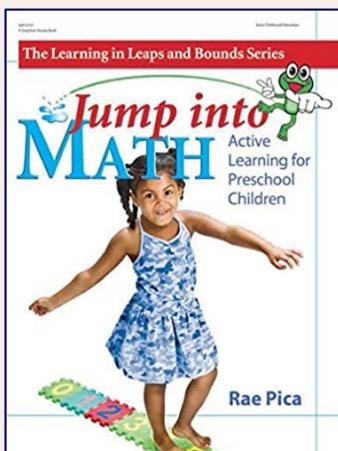
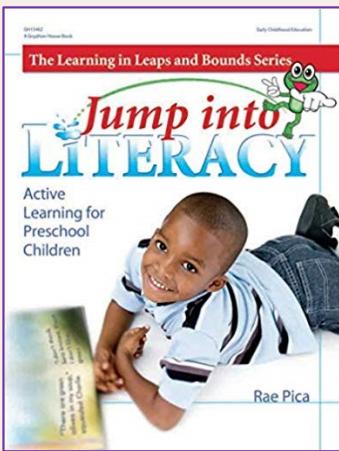
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RAE PICA



Rae has been an early childhood education consultant since 1980. Dedicated to developing and educating the whole child, she is the author of 22 books, including the text *Experiences in Movement & Music* (in its 5th edition), and two of her latest, *What If We Taught the Way Children Learn?* and *Acting Out! Avoid Behavior Challenges with Active Learning Games & Activities*.

Rae is a former adjunct instructor for the University of New Hampshire and is currently a blogger, online course creator, and popular virtual presenter. The National Association for the Education of Young Children, the National Association for Family Child Care, Eric Jensen's Learning Brain Expo, state WIC organizations, education conferences, resource and referral agencies, and schools in 46 states and Canada are among those who have invited Rae to address their groups.

As a consultant, Rae has shared her expertise with such groups as

- ✓ Sesame Street Research Department
- ✓ Head Start Bureau
- ✓ Centers for Disease Control
- ✓ Nickelodeon's *Blue's Clues*
- ✓ Gymboree
- ✓ Hasbro
- ✓ Mattel
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- ✓ Bright Horizons
- ✓ Canadian Broadcast Corp.
- ✓ Chicago Children's Museum