

Unit 3

Properties of Matter

Introduction

Preschoolers are eager to explore the things they encounter in every day life. The centers in this unit help them:

- develop language about an object's properties
- sort objects into groups
- compare length, weight, color and more

Properties of Matter #1 Hard & Soft

Sorting objects into groups is an important learning skill. Use this hard-soft center as a simple introduction to the concept of sorting by attribute.

Learning Objectives:

- The student will use the senses of touch to identify the physical properties of an object.
- The student will sort objects into 2 groups, based on their attributes.

Recommended Supplies:

hard things	soft things
rock	stuffed animal
shell	cotton ball
block	pillow
tree branch	beanbag
spoon	play dough
acorn	coins
scissors	tissue
book	feather
marker	razor
eraser	blanket
combs	pom-pom

Procedure:

1. Sort objects into hard and soft groups.
2. Discuss the properties of each group.
3. Encourage students to describe the objects.

Properties of Matter #2 Quiet & Loud

Use plastic eggs to create this "Quiet & Loud" center. They are visually appealing and help students use just their sense of hearing to observe them.

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will use the sense of hearing to make observations.
- The student will sort objects according to their attributes.

Recommended Supplies:

Fill plastic eggs with these objects. Tape the egg together to prevent spilling.

corn	rubber bands	icky, icky gelatin
paper clips	beans	popcorn kernels
crayons	pebbles	napkin
flour	spoons	
ping-pong balls	spind	
small toys	water beads	
rice		

Procedure:

1. Fill plastic eggs with objects.
2. Tape eggs together.
3. Sort eggs by sound.

Properties of Matter #3 Smooth & Bumpy

Autumn is the perfect time for students to observe mini pumpkins and gourds. Ask parents for donations of these items, or visit a local pumpkin patch and have students pick their own.

Learning Objectives:

- The student will use the senses of sight and touch to make observations about objects.
- The student will develop language to describe the properties of an object.
- The student will sort objects according to their attributes.

Recommended Supplies:

- variety of mini pumpkins and gourds
- hand lenses
- if desired, cut one gourd open and add tweezers

Procedure:

1. Observe pumpkins and gourds.
2. Use hand lenses to observe details.
3. Sort pumpkins and gourds by texture.

Properties of Matter #4 Heavy & Light

Young children are fascinated by a balance and how to make it go "up" or "down". They have probably explored it at the playground on a seesaw. Set up this center to help them understand weight and how a balance works.

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will compare the weight of 2 objects.
- The student will sort objects according to their attributes.

Recommended Supplies:

- classroom balance
- test item (apple, small rock, or block)
- other objects to weigh

Procedure:

1. Use balance to weigh objects.
2. Sort objects by weight.
3. Discuss the results.

Properties of Matter #5 Long & Short

Most children have experienced being measured for their height. Their parents or teachers may have commented, "Wow! You're getting taller." Use this experience as a springboard for learning about length at this center.

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will sort objects according to their attributes.
- The student will use the terms "longer" and "shorter" when comparing 2 objects.

Recommended Supplies:

- ruler, measuring tape, or yard stick
- test item (a pencil works perfectly)
- objects to measure against the pencil

Procedure:

1. Measure objects with ruler.
2. Sort objects by length.
3. Discuss the results.

Properties of Matter #6 Sort by Color

Different species of trees have leaves that turn different colors in the autumn. Young children are fascinated by this seasonal event. Set up this center to help them observe the leaves more closely.

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will sort objects according to their color.

Recommended Supplies:

- Go on a nature walk to gather a variety of autumn leaves
- hand lenses
- paper & peeled crayons to make rubbings

Procedure:

1. Gather autumn leaves.
2. Sort leaves by color.
3. Make leaf rubbings.

Book Recommendations:

- *How Long?* by Jessica Qunderston
- *Short Train, Long Train* by Frank Asch
- *Inch by Inch* by Leo Lionni
- *We're going on a Leaf Hunt* by Steve Metzgar
- *Red Leaf, Yellow Leaf* by Lois Ehlert
- *Autumn Leaves* by Ken Robbins

Properties of Matter #1

Hard & Soft

Sorting objects into groups is an important learning skill. Use this hard-soft center as a simple introduction to the concept of sorting by attribute.

Recommended Supplies:

hard things

rock
shell
block
tree branch
acorn
scissors
book
marker
spoon
coins

soft things

stuffed animal
cotton ball
pillow
beanbag
play dough
tissue
feather
fabric
blanket
pom-pom

Procedure:

1. Place a basket of objects at the science center. Section off a tray (or the table) into 2 parts and label them: "I can sort soft" and "I can sort hard."
2. Invite students to explore an object with their hands. Talk about what the object feels like. Is it soft, or is it hard?
3. Have the students place each object into a category—either soft or hard.

Learning Objectives:

- The student will use the sense of touch to identify the physical properties of an object.
- The student will sort objects into 2 groups, based on their attributes.



Book Recommendations:

Hard and Soft by Sian Smith

Animal Opposites: Hard and Soft by
Cecilia Minden

Is it Hard or Soft? by Helen Mason

Properties of Matter #2

Quiet & Loud

Use plastic eggs to create this “Quiet & Loud” center. They are visually appealing and help students use just their sense of hearing to observe them.

Recommended Supplies:

Fill plastic eggs with these objects. Tape the egg together to prevent spilling.

coins	cotton balls	rubber bands	silly putty
paper clips	flour	beans	glitter
seeds	jingle bells	pebbles	pom poms
marbles	small legos	sand	popcorn kernels
salt	rice	water beads	napkin

Procedure:

1. Place eggs in a basket at the science center. Section a tray (or the table) into 2 parts and label them “I can sort Quiet” and “I can sort Loud.”
2. Invite students to explore each egg by shaking it and listening to the sound with their ears
3. Have the students place each egg into a category– either quiet or loud.
4. If desired, at the end of the week, open the eggs with the students and talk about what was inside each one.

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will use the sense of hearing to make observations.
- The student will sort objects according to their attributes.



Book Recommendations:

The Very Quiet Cricket by Eric Carle
The Rooster Who Would Not be Quiet! by Carmen Agra Deedy
The Loud Book by Deborah Underwood
Loud Lula by Katy S. Duffield

Properties of Matter #3

Smooth & Bumpy

Autumn is the perfect time for students to observe mini pumpkins and gourds. Ask parents for donations of these items, or visit a local pumpkin patch and have students pick their own.

Recommended Supplies:

- variety of mini pumpkins and gourds
- hand lenses
- if desired, cut one gourd open and add tweezers

Procedure:

1. Allow the students to touch the pumpkins and gourds. Ask them to talk about what they feel with their hands. What does the outside of the gourd feel like? Is it smooth or bumpy?
2. Section off a tray or the science center table into 2 parts and label them "I can sort Smooth" and "I can sort Bumpy."
3. Encourage students to touch each gourd and then place it into the matching category.

Learning Objectives:

- The student will use the senses of sight and touch to make observations about objects.
- The student will develop language to describe the properties of an object.
- The student will sort objects according to their attributes.



Book Recommendations:

The Bumpy Little Pumpkin by Margery Cuyler
That's Not my Tractor... by Fiona Watt (Usborne)
Soft and Smooth, Rough and Bumpy by Dana Meachen Rau
Smooth and Rough: An Animal Opposites Book by Lisa Bullard

Properties of Matter #4

Heavy & Light

Young children are fascinated by a balance and how to make it go “up” or “down”. They have probably explored it at the playground on a seesaw. Set up this center to help them understand weight and how a balance works.

Recommended Supplies:

- classroom balance
- test item (apple, small rock, or block)
- other objects to weigh:

rock	dice	paperweight
ball of dough	teddy bear counter	rubber band
paper clip	battery	small toy
coin	feather	stuffed animal

Procedure:

1. Bring in a small bathroom scale or food scale. Discuss with the students what it is used for.
2. Show the balance and explain that it goes up and down like a seesaw. The item that goes down is heavier. The one that goes up is lighter.
3. Invite students to weigh objects to determine if they are heavier or lighter than an apple (or block, rock, or whatever you choose).
4. Students sort the objects as either “heavy” or “light.”

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will compare the weight of 2 objects.
- The student will sort objects according to their attributes.



Book Recommendations:

Just a Little Bit by Ann Tompert
How Heavy? by Mark Weakland
Balancing Act by Ellen Stoll Walsh

Properties of Matter #5

Long & Short

Most children have experienced being measured for their height. Their parents or teachers may have commented, "Wow! You're getting taller." Use this experience as a springboard for learning about length at this center.

Recommended Supplies:

- ruler, measuring tape, or yard stick
- test item (a pencil works perfectly)
- objects to measure against the pencil:

glue stick	pointer	spoon
scissors	paper	crayon
teddy bear	paper clip	shoe
book	interlocking cubes	block

Procedure:

1. Begin a discussion about how we can tell if things are long or short. What can we use to measure them.
2. Show the students a pencil and ask if they can find anything in the room that is longer than the pencil. Measure the objects, then ask if they can find anything that is shorter than the pencil.
3. Place the objects at the science center, along with the pencil. Encourage the students to sort the objects into 2 groups: "Long" and "Short."

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will sort objects according to their attributes.
- The student will use the terms "longer" and "shorter" when comparing 2 objects.



Book Recommendations:

How Long? by Jessica Gunderson
Short Train, Long Train by Frank Asch
Inch by Inch by Leo Lionni

Properties of Matter #6

Sort by Color

Different species of trees have leaves that turn different colors in the autumn. Young children are fascinated by this seasonal event. Set up this center to help them observe the leaves more closely.

Recommended Supplies:

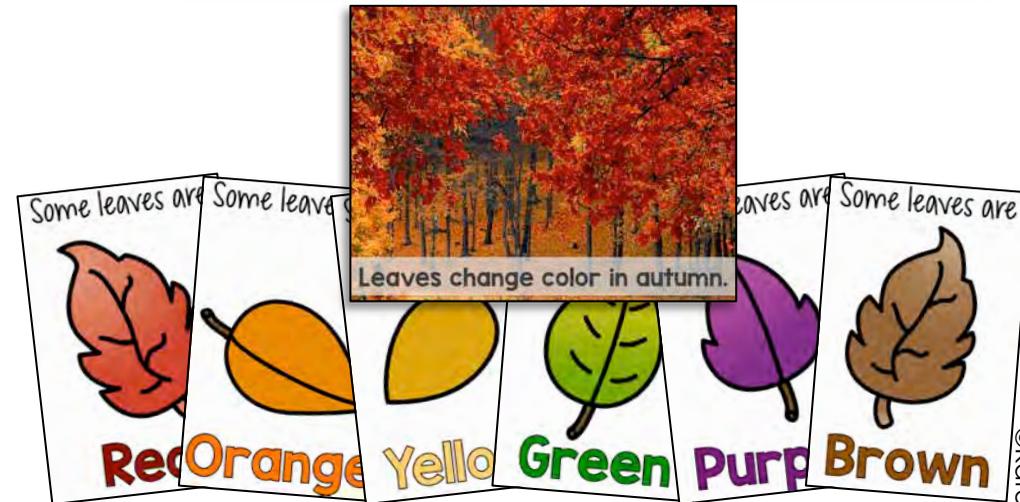
- Go on a nature walk to gather a variety of autumn leaves.
- hand lenses
- paper & peeled crayons to make rubbings.

Procedure:

1. Place the leaves at the science center, along with hand lenses or magnifying glasses. (You might consider laminating a few of the leaves to help preserve them.)
2. Tape the sorting pages ("Some leaves are RED," etc.) to the science table.
3. Encourage students to observe the leaves, talk about them, and sort them by color.

Learning Objectives:

- The student will develop language to describe the properties of an object.
- The student will sort objects according to their color.



Book Recommendations:

We're going on a Leaf Hunt by Steve Metzger
Red Leaf, Yellow Leaf by Lois Ehlert
Autumn Leaves by Ken Robbins