



APPLES

Kindergarten to Grade 3
(Preschool to Cycle 2)



Apples can be used for more than just eating. Use these fun inquiry-based activities about apples to explore math, science, and languages with your students.

CONTENTS

Play-Based Learning Station

Apple Play

Science and Technology

An Apple Tree's Story
The Life Cycle of an Apple
Which Animals Eat Apples?
Precious Cargo
Apples: Taste or Smell?

Mathematics

Counting Apples
A Basket of Apples
Which Has More Apples?
Apple Fractions

Language

Word Scramble

Appendices

Appendix A – Recommended Reading
Appendix B – Interesting Apple Facts
Appendix C – Apple Templates

APPLE PLAY



Add this activity to a math station and let your students discover different patterns while they sort apples.

Materials

- Paper apples of various sizes (see templates in Appendix C) or real apples in different colours and sizes.

Instructions

1. Prepare paper apples cards, and colour some beforehand. Or use real apples of different colours and shapes.
2. Let the students play with the apples, create patterns or sort them out.
3. Have students add a dimension to the patterns by letting them draw spots or designs on the paper apples. If you laminate the cards, the students can use non permanent markers to draw designs on the apples. It will be easy to erase for the next group.

Questions for further reflection:

- Are all of your apples the same? Which ones are the same? Which ones are different?
- Why did you put those ones together?
- Would it work if I added this apple at the end? Or at the beginning?
- Are all of your apples the same size? The same colour? The same shape?
- Do some apples have multiple colours or are they one solid colour?

Suggestions

1. Hide the apples throughout the room. Be sure to keep a list of where the apples are, so that you can give students “hot” and “cold” directions when they’re down to the last few apples.
2. Demonstrate the similarities between apples. For example, show your students that all apples float in a motor skills bobbing-for-apples activity. Instead of using their mouths to pull out an apple, students use a pair of plastic tongs or spoons.
3. Cut two different-coloured apples in half, width-wise. Point out that both apples have a star-shaped pattern inside, and that they both have seeds, or “pips.”

AN APPLE TREE'S STORY



In this activity, students illustrate a storybook while exploring a tree's seasonal changes. An excellent project that includes science, language and arts .

Instructions

1. Introduce the activity with a short story: "Julia was writing a book about apples. She thought she was finished, when all of a sudden, a strong gust of wind blew the pages of her book away. She managed to find all the pages, but they are not in order anymore. Can you help Julia put her book back together?"
2. Get your students' help in sorting out the order of Julia's story. Read each page, and ask if anyone can suggest which page to start with, which page comes next, etc. Make silly suggestions, such as starting the book with "The End." If the class is deciding between two different pages, ask them to think about which one of the two should come first.
3. If they're stumped, emphasize the seasonal changes. If they still need help, hint at some of the key words. For instance, if the class is trying to figure out which page comes after bees pollinate the apple flowers, ask them if there is another page that talks about bees.
4. When a student suggests putting a page in a certain place, ask the student why he or she chose that order. Through trial-and-error, your class can put together the story that makes the most sense.

Suggestion

Have the students illustrate the pages in the book. Assemble one illustrated storybook for the class, or give each student a copy of the book.

NOTE: When photocopying the activity sheets to make a book for the students, use single-sided copying. Otherwise, the pages will not line up when the book is pieced together.

Bees visit the apple trees that have blossomed, and share the pollen between the blossoms. Bees help apple trees make apples.

By autumn, the apples are ready for harvest. Many people come to the orchard to help pick the apples.

Once upon a time, an apple tree waited patiently throughout
the long winter.

As the snow started to fall, the apple tree went to sleep
for the winter.

The End.

During the summer, the apples grow bigger and bigger. Soon, they will be ready for harvest.

After the bees have done their work, tiny fruit start to grow where the flowers once were.

The leaves fall off the apple tree as the tree gets ready for winter.

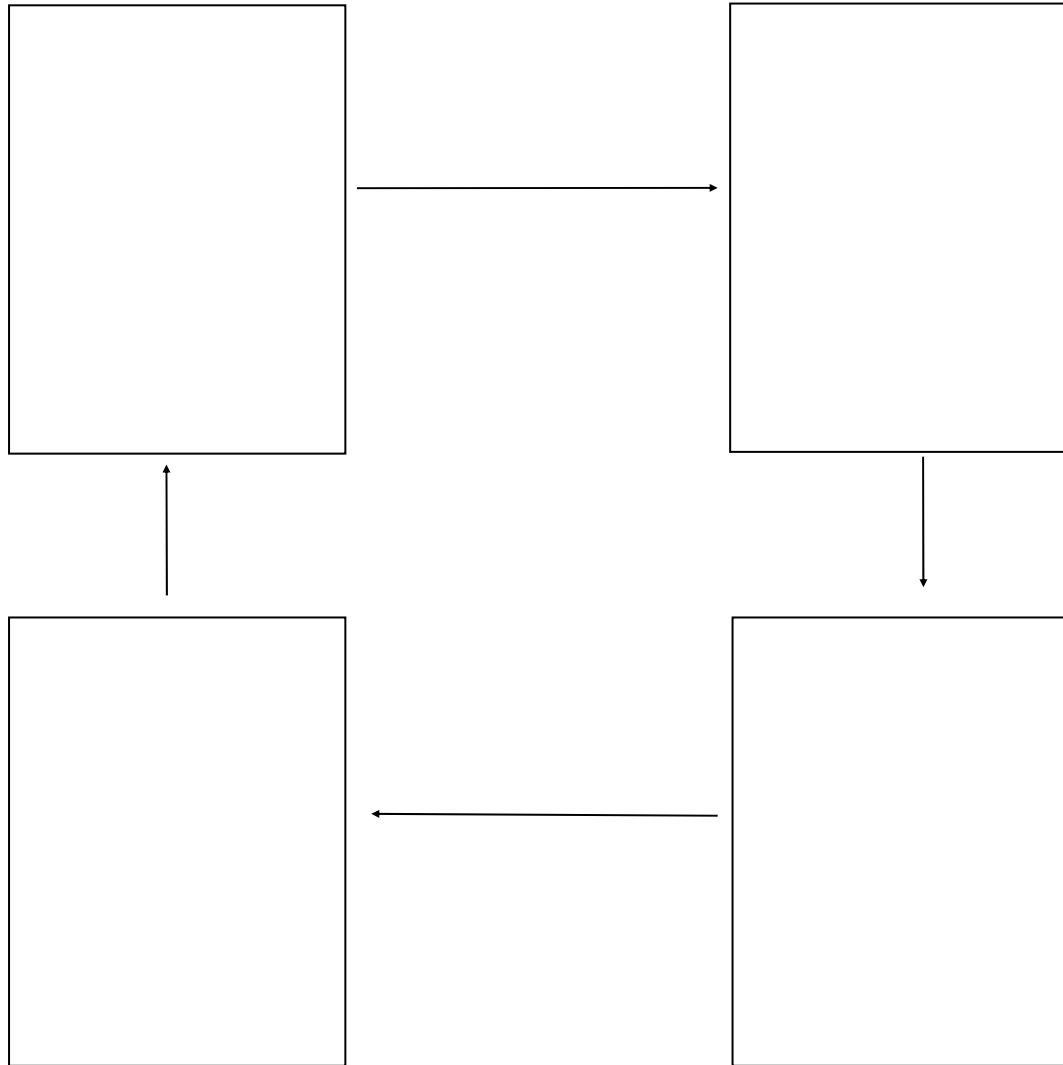
The snow melts away. Spring is here, and the flowers begin to blossom.

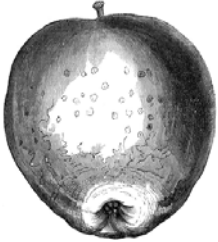
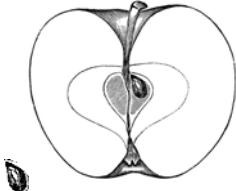


Name: _____

Date: _____

The Life Cycle of an Apple Tree

Cut out the pictures and glue them in order.



 <p>The flowers become fruit.</p>	 <p>The seeds found inside apples are called pips.</p>	 <p>Apple trees blossom in the spring.</p>	 <p>Bees carry the pollen from one apple tree to another.</p>
--	---	--	--

Which Animals Eat Apples?

(Answers)

1. Circle all the animals that eat apples.

Coyote	Fly	Salamander
Horse	Deer	Catfish
Chicken	Salmon	Toad
Snake	Canada Goose	Squirrel
Human	Wasp	Peregrine Falcon

2. Using the whole list above, place each animal in the right family. Use the characteristics of each family to help you classify them.

Mammals	Reptiles	Birds	Amphibians	Fish	Insects
<ul style="list-style-type: none"> • Nurse their young • Covered in fur or hair 	<ul style="list-style-type: none"> • Skin covered in scales • Lay eggs • Sometimes shed their skin as they grow 	<ul style="list-style-type: none"> • Covered in feathers • Have two feet • Lay eggs • Have wings 	<ul style="list-style-type: none"> • Lay eggs • Live in water when young, then on land once fully grown 	<ul style="list-style-type: none"> • Skin covered with scales • Have gills • Lay eggs • Live in water 	<ul style="list-style-type: none"> • Have antennae • Bodies have three parts • Have six legs
Coyote Horse Squirrel Human Deer	Snake	Chicken Canada Goose Peregrine Falcon	Toad Salamander	Salmon Catfish	Fly Wasp

Name: _____

Date: _____

Which Animals Eat Apples?

1. Circle all the animals that eat apples.

Coyote

Fly

Salamander

Horse

Deer

Catfish

Chicken

Salmon

Toad

Snake

Canada Goose

Squirrel

Human

Wasp

Peregrine Falcon

2. Using the whole list above, place each animal in the right family.
Use the characteristics of each family to help you classify them.

Mammals	Reptiles	Birds	Amphibians	Fish	Insects
<ul style="list-style-type: none">• Nurse their young• Covered in fur or hair	<ul style="list-style-type: none">• Skin covered in scales• Lay eggs• Sometimes shed their skin as	<ul style="list-style-type: none">• Covered in feathers• Have two feet• Lay eggs• Have wings	<ul style="list-style-type: none">• Lay eggs• Live in water when young, then on land once fully grown	<ul style="list-style-type: none">• Skin covered with scales• Have gills• Lay eggs• Live in water	<ul style="list-style-type: none">• Have antennae• Bodies have three parts• Have six legs

PRECIOUS CARGO



Using an assortment of materials, students design packaging for an apple. An excellent complement to learning about the properties of materials, this activity is educational for all young students.

Materials

- Apples
- Tape
- Straws
- Cotton balls
- Grocery bags
- Paper
- Polystyrene packing peanuts
- Scissors
- Markers
- Any other material that could be useful for construction
- Weighing scale

Instructions

1. Introduce the activity. Explain that after apples are harvested, they are delivered to market—including grocery stores—and to processing facilities to be turned into sauce, juice or other products. Along the way, apples can get damaged. How do you think this happens?
2. Give each child an apple. Using the materials provided, have students design packaging to keep their apples safe. Tell them that their design should minimize bruising, but should also take into account the following:
 - A. Minimizing the amount of packaging used, while keeping the apple protected.
 - B. Making the packaging as small as possible, to save space.
 - C. Designing something that allows the apple to be packed easily with many other apples in a box.

3. When the designs are complete, have the students write their names on their projects and place the apples in the packaging. Test the designs by shaking them—don't be too violent, but shake the apples around enough to really test the designs.
4. Return the apples to the students. Allow the students to see how well their packaging held up to the test. Can they see or feel any soft spots? The best way to see if the apples were damaged is to wait a day, then eat them! That will give the bruised spots enough time to oxidize, or turn brown.
5. Discuss the strategies and materials that worked best for this activity. You can also weigh the designs and place them in order of weight. Were there some ideas that didn't work?

Suggestion

It is important to emphasize that, although everyone is trying their best to design the perfect protection for their apples, this isn't about getting it right on the first try—this is about experimenting with different materials. In the real world, researchers don't just come up with an idea and present it as a finished product. Only through testing, experimenting and tinkering do we come up with a high-quality design that works.

You can sum up the exercise by building class-wide consensus as to what the best design should be, then construct a prototype.

APPLES: TASTE OR SMELL?

This group activity demonstrates the link between taste and smell in a fun way. This activity can be done as early as kindergarten, but excitement about the mystery of how our senses can fool us is fun for all children—and adults! Please be aware of any food sensitivities your students may have.

Materials

- Apples, cubed
- Potatoes, cubed
- Mint (fresh or essence)
- Lavender (fresh or essence)
- Cotton ball or something absorbent (if using the essential oils of mint or lavender)

Instructions

1. Ask students if they smell their food while they eat. Although our tongues can perceive at least five different tastes, our sense of smell is really what give us a sense of flavour. We can distinguish between thousands of smells.
2. Give each student a cube of potato and a cube of apple. Have them pinch their noses while they sample and try to distinguish between the two. Ask them to only eat half of the sample, then repeat the experiment without pinching their noses. The visual stimulus (which their brains associate with eating apples instead of potatoes) and lack of smell will make it difficult to identify what they are eating.
3. Give students another cube of apple, and the mint. Ask them to eat a piece of apple while holding the mint under their noses. Repeat the experiment with lavender. The overpowering smell of mint will make it difficult to identify the flavour as apple, while the lavender compliments the apple's taste. In both cases, however, it will be difficult to taste the apple.

Suggestion

Ask students if there are certain foods they don't enjoy. See if your students can willingly eat something at home that they don't like if they pinch their noses, or if they have a bad cold.

Note for Teachers

Taste is sensed by the tongue, and smell is sensed by the nose. The combination of scent and taste produces flavour. But our perception of taste is very limited compared to the thousands of smells we can detect. Without smell, we're generally limited to four variables: sweet, sour, bitter and salty. A fifth taste, *umami*, was discovered at the beginning of the 20th century, and is Japanese for "delicious taste." *Umami* acts like a flavour enhancer, and is found in many foods, such as meats, cheeses and tomatoes. Ketchup has a strong *umami* presence, which is why it enhances the saltiness of French fries so well.

Visual stimulus also plays a major role. Before the white chunk of apple or potato even hits your mouth, your eyes see it, and your brain thinks, "Get ready to taste apple!", then tries to make your perception match the anticipated flavour. Your brain has already decided that what you are about to eat will taste like apple.

If you were to drink a glass of orange liquid, your brain would say, "Get ready for orange flavour!" But if it wasn't orange punch, but rather red fruit punch with yellow food colouring to make it orange, you'd have a very difficult time identifying the flavour as fruit punch. It's almost subconscious, but your brain is convinced that if it's orange coloured, but doesn't taste like orange (the fruit), then it's a completely new flavour experience, or a very odd-tasting variety of orange. Even after being informed of the real identity of the flavour, your perception of it may still be off.

COUNTING APPLES



An active workshop to demonstrate different ways of counting or subtracting to 5. Students must use communication skills and teamwork to fill the “baskets” (hula hoops) with exactly 5 apples.

Great for kindergarten groups learning how to group things into fives.

Materials

- Paper apple cut-outs (ideally, double the amount of students)
- Hula hoops

Instructions

1. Prepare the apple cut-outs. If needed, there are templates for apples in the Appendix C. Give one to each student, and keep the rest with you.
2. Place hula hoops on the floor. Each hoop represents a basket that can hold up to 5 “apples”—i.e., individual students. Ensure that there are enough hula hoops to hold all students.
3. Tell students that the purpose of the game is to make piles of 5 “apples” inside each of the hula hoops. Students do this by stepping into a hula hoop. Explain that there can be no more than 5 “apples” per hula hoop. Have students step into the hula hoops to form groups of 5.

Note: If your class size is not a multiple of 5, create “leftover apples”. For instance, 18 students gives you 3 full hula hoops with 3 left over, so simply add 2 extra paper apples to a fourth hula hoop so that all hula hoops contain exactly 5 apples.

4. Start again, but ask students to go to a different hula hoop with their apples, joining up with different teammates. Once everyone has found a hula hoop, count the number of apples per “basket” with your students. If there are more or less than five apples in any given hoop, help students move to a different hoop.
5. Place additional hula hoops on the floor. Inside each hula hoop, place a random number of paper apples (1–5).
6. This time, students must count the number of paper apples in a “basket” before they step into it. Give students examples before letting them find a basket. Give them a minute to settle in before proceeding to the next step.

Example: Point to a hula hoop in which you have placed 3 apples, and ask students how many more apples they need to add to make 5.

Suggestions

With plenty of hula hoops, students can get a lot of physical activity playing a game similar to Musical Chairs, but with no losing scenario. This is a great way to physically engage students in a math-based challenge.

You can also design counting activities similar to those on the worksheet that follows. Students can also personalize their apples before or after the activity.



Name: _____

Date: _____

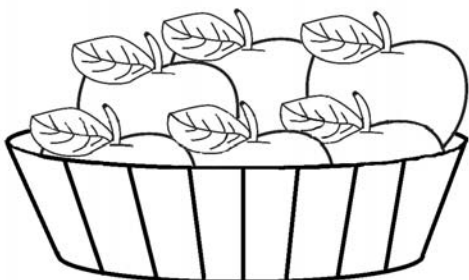
A Basket of Apples

Each basket can hold only 5 apples. How many apples do we need to add, or take away, from each basket to make 5 apples?



There are _____ apples in this basket.

We need to add _____ apples to make 5.



Uh-oh! There are _____ apples in this basket.

We need to take away _____ apple to make 5.



There is _____ apple in this basket.

We need to add _____ apples to make 5.



There are _____ apples in this basket.

That's the perfect amount of apples for our basket!

Name: _____

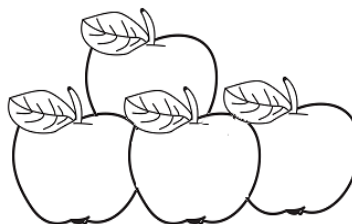
Date: _____

Which Has More Apples?

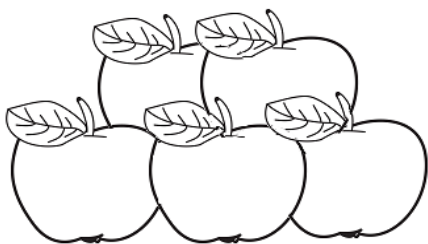
Circle the group with more apples.



OR



OR



OR



OR



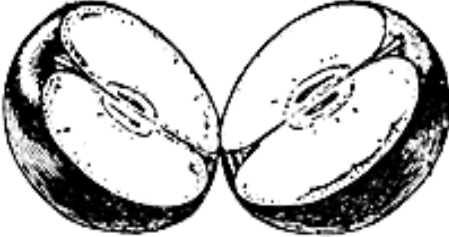
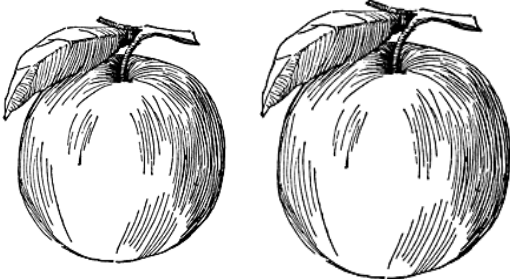


Name: _____

Date: _____

Apple Fractions

Represent the apple pieces as fractions.

Name: _____

Date: _____

Word Scramble

Put the letters in the proper order.

m r o w _____



e b e _____



f w r o e l _____



d e s s e _____



r e t e _____



p a l p e _____



RECOMMENDED READING

This list of books is suitable for young children learning to read:

Ten Red Apples by Pat Hutchins (Greenwillow Books, 2000, ISBN 9780688167974)

The Apple Pie Tree by Zoe Hall (Blue Sky Press, 1996, ISBN 9780590623827)

Apples and Pumpkins by Anne Rockwell (Little Simon, 2014, ISBN 9781442499775)

How Do Apples Grow? by Betsy Maestro (Harper Collins, 2000, ISBN 9780064451178)

Johnny Appleseed by Steven Kellogg (Harper Collins, 2008, ISBN 9780688140250)

The Seasons of Arnold's Apple Tree by Gail Gibbons (HMH Books for Young Readers, 2001, ISBN 9780152712457)

Ten Apples Up On Top! by Dr. Seuss (Random House Books for Young Readers, 1961, ISBN 9780394800196)



INTERESTING APPLE FACTS

Share some of these interesting facts with your students.

Did You Know That . . .

- The wild ancestor of the modern apple, called the *Alma*, still grows in Western Asia today.
- Apples have been cultivated by humans for more than 4,000 years. In fact, apple trees may have been the first trees to be cultivated.
- Apples were brought to North America by the first European settlers.
- There are more than 7,500 known cultivars, or varieties, of apples, with a broad range of shapes, sizes, colours, and tastes. The size of the tree and its yield also vary from one cultivar to another.
- Most apple varieties are cultivated for fresh fruit, but a few are grown for cooking or for producing cider. Cider apples are typically more tart, to give the cider a rich flavour.
- To become commercially popular, a given variety must not only have a popular flavour, but must also have a “typical” apple shape (like that of the Red Delicious variety). It must also have colourful skin that does not tend to russet (roughen and turn greenish or yellowish brown), be easy to ship, keep well for long periods of time, have high yields, and resist disease.
- The popularity of particular flavours varies regionally, and has also evolved over time. Modern apples are typically sweeter than older varieties. Apples with a slightly more acidic flavour are more common in North America and Europe than in Asia and India, where extremely sweet apples are more popular.

APPLES FOR PLAY STATIONS

