The Book Planter
Ag in the Classroom
Post Office Box 27766 | Raleigh, NC 27611 | (919) 782-1705
ncagintheclassroom.com

October 2021: *A Song for Lena*
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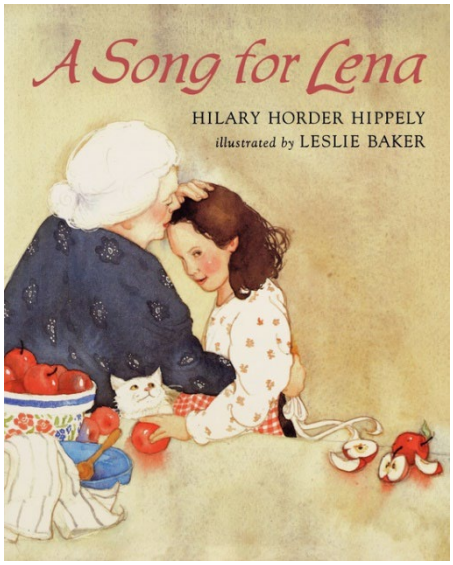

As Lena helps her grandmother make apple strudel, the woman tells her a story about her childhood in Hungary. One day, she and a friend are approached by a wandering beggar. They race to the house, frightened, but Mother decides that the man should have some of their just-made strudel. He repays their kindness by playing sweet, sad music on his violin. Each year he returns, has his piece of strudel, and plays, until finally one season the harvest comes, but the beggar does not. Father says that "Perhaps our friend isn't hungry anymore." He tells the children to listen closely, and they hear the wanderer's music in the sounds of the country night.

Apple Ag Facts

- Apples are a member of the rose family.[1]
- Apples are grown commercially in 36 states.[1]
- Peak harvest for North Carolina apples is mid-August through October.[2]
- North Carolina ranks 7th in apple production in the United States.[2]
- Fresh market apples make up 40% of North Carolina's apple crop, while 60% is used for processing to make products such as apple juice and applesauce.[3]
- North Carolina's four main apple varieties are Red Delicious, Golden Delicious, Rome Beauty, and Gala.[3]

Interest Approach – Engagement[1]

Read the book *A Song for Lena*. Ask the class, "What is an agricultural commodity?" (*A crop, product, or livestock that a farmer or rancher produces on a farm.*) Ask, "What was the agricultural commodity featured in the book, *A Song for Lena*?" (*Apples*) Lead a class discussion about apples. Use the following questions to guide the discussion:

- Have you ever heard the saying, "An apple a day keeps the doctor away?"
- How many of you really do eat one apple every day?
- Do you think eating an apple every day really makes a difference?
- Have you ever been to an apple orchard? What did you notice while you were there?
- How many apple orchards do you think there are in our state?
- Do you eat organic foods at home? What kind(s)? What do you think makes organic foods different from conventionally produced foods?

Activity 1: Claims and Evidence[1]

1. Explain to the students the “An apple a day keeps the doctor away,” is a popular phrase that makes a claim. A claim is a strong opinion. Ask the students, “Is there really evidence that apples have health benefits?”
2. Watch the video An Apple a Day Keeps the Doctor Away (**Links**). Ask the students to consider the claim that is being made in the video and listen for any evidence that is used to back up the claim.
3. After watching the video, ask the students to answer the following questions in their journal or on a sheet of paper.
    a. What claim is being made? (*An apple a day does keep the doctor away*.)
    b. What evidence is used to support each claim? (*100-year-old Edna eats an apple a day and is still alive. Ten years of research by Horticulture Australia deduced that eating apples with the skin reduces diabetes, cholesterol, and asthma and regulates metabolism*.)
    c. Is the evidence strong enough? Why or why not?
    d. Invite the students to share their answers with the class.

Activity 2: Organic and Conventional Farming[1]

1. Using the information from the *Background Agricultural Connections* (**Links**), discuss the differences between organic and conventionally grown food.
2. Organize the students into small groups. Provide each group with a *Pest Management Card* (**Links**). Ask the students to read the information as a group and decide whether or not the management practice is organic, conventional, or both. Draw a large, two-circle Venn diagram on the board with one circle labeled "conventional," one circle labeled "organic," and the overlapped section labeled "both." Ask each group to share their conclusions with the class by placing their card on the Venn diagram. Note that all of the conventional cards should be placed in the circle labeled "conventional," and all other cards should be placed in the overlapped section labeled "both." Lead a discussion about how conventional orchards use many of the same pest management controls as organic growers and, in addition, are permitted to use Restricted Use Pesticides.
3. Using information from the Evaluating Online Resources article (**Links**), discuss the importance of evaluating and how to determine the credibility of online content. Handout the two articles, one article from each list, to each group. Explain to the students that the articles were found online and make different claims about organic and conventional food. Ask the students to consider the credibility of the information in the articles.

    List 1:
    Organic vs Regular Apples
    Five Reasons to Eat Organic Apples: Pesticides, Healthy Communities, and You
    Organic farming is on the rise in the U.S.

    List 2:
    Organic Foods: Are they safer? More Nutritious?
    Organic Shmorganic: Conventional fruits and vegetables are perfectly healthy for kids

Should You Go Organic?

4. After reading the articles, have each student answer the following questions in their journals for each of the articles their group read.
    - Who is the author?
    - Is the author a reliable source? Why or why not?
    - What claim is being made?
    - What evidence is used to support the claim?
    - Is the author credible? Why or why not?
    - What does the article make you wonder about?
5. Ask each student to draw their own conclusion about organic and conventionally grown food and write a statement in their journals.
6. **Extension Activity**: Continue researching apples, and have the students write a business letter to their school administrator or a business to persuade them to purchase conventional and/or organic apples. Research the cost difference in purchasing or growing conventional and organic apples. Make bar graphs comparing conventional and organic apples. Students can compare the amount of apples purchased, the amount of pesticides used, or the shelf life of the apples.

Activity 3: Apple Antonym/Synonyms[4]
This worksheet is attached and in the **Links** section.

Activity 4: Apple Math[4]
This worksheet is attached and in the **Links** section.

Links

- An Apple a Day Keeps the Doctor Away (video from **Activity 1**) https://www.youtube.com/watch?v=7mqD0syO0fA
- *Background Agricultural Connections* (**Activity 2**) https://drive.google.com/file/d/1ahTRuY3ezYFEZcT4t7Inq_-8s8UzZUSy/view?usp=sharing
- Evaluating Online Sources article (**Activity 2**) https://library.columbia.edu/libraries/undergraduate/evaluating_web.html
- Articles from **Activity 2** (full links):
    - Organic vs. Regular Apples https://wakethewolves.com/organic-apples-vs-regular-apples-does-it-really-matter/
    - Five Reasons to Eat Organic Apples: Pesticides, Healthy Communities, and You https://www.forbes.com/sites/bethhoffman/2012/04/23/five-reasons-to-eat-organic-apples-pesticides-healthy-communities-and-you/?sh=170ce4383743
    - Organic farming is on the rise in the U.S. https://www.pewresearch.org/fact-tank/2019/01/10/organic-farming-is-on-the-rise-in-the-u-s/

    - Organic Foods: Are they safer? More nutritious? https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/organic-food/art-20043880?pg=1
    - Organic Scmorganic: Conventional fruits and vegetables are perfectly healthy for kids https://slate.com/human-interest/2014/01/organic-vs-conventional-produce-for-kids-you-dont-need-to-fear-pesticides.html
    - Should you go organic? https://www.health.harvard.edu/staying-healthy/should-you-go-organic
- *Apple Antonym/Synonym Worksheet* (**Activity 3**) https://drive.google.com/file/d/1aV06gqyvFUEN1sjD9Hw_vbhoxTWIvO87/view?usp=sharing
- *Apple Math Worksheet* (**Activity 4**) https://drive.google.com/file/d/1T71Tzg_60-i4U7TXuQJiOKkqYxcNkXc3/view?usp=sharing

Sources

1. https://northcarolina.agclassroom.org/lesson/673/
2. https://www.ncagr.gov/markets/commodit/horticul/apples/facts.htm
3. https://ncfieldfamily.org/farm/farm-facts-apples/6/
4. http://www.agintheclassroom.org/TeacherResources/ISAT%20PDF%20FILES/Apple%20ISATS.pdf

K-5 Subject Areas

Reading, Writing, Speaking and Listening, Math, Science, and Social Studies

NC Standard Course of Study

Reading

- **RI.K.6** With prompting and support, define the role of the author and illustrator in presenting the ideas or information in a text.
- **RL.1.6** Identify who is telling the story at various points in a text.
- **RI.1.8** With guidance and support, identify the reasons an author gives to support ideas in a text.
- **RI.2.6** Identify the author's main purpose of a text, including what the author wants to answer, explain, or describe.
- **RI.2.8** Identify the reasons an author gives to support ideas in a text.
- **RI.3.6** Distinguish their own point of view from that of the author of a text.
- **RI.3.8** Describe how the author connects ideas between sentences and paragraphs to support specific points in a text.
- **RI.4.8** Explain how an author uses reasons and evidence to support particular points in a text.
- **RI.5.8** Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

Writing

- **W.K.1** Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book.
- **W.K.3** Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and with guidance and support, provide a reaction to what happened.
- **W.K.6** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- **W.1.1** Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide closure
- **W.1.6** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- **W.2.1** Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words to connect opinion and reasons, and provide a concluding statement or section
- **W.2.6** Recall information from experiences or gather information from provided sources to answer a question.
- **W.3.1** Write opinion pieces on topics or texts, supporting a point of view with reasons.
- **W.3.6** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
- **W.4.1** Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

- **W.4.6** Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.
- **W.5.1** Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- **W.5.6** Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work and provide a list of sources.

Speaking and Listening

- **SL.K.1** Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
- **SL.K.2** Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- **SL.K.5** Add drawings or other visual displays to descriptions as desired to provide additional detail.
- **SL.1.1** Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- **SL.1.2** Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- **SL.1.5** Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
- **SL.2.1** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
- **SL.2.2** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- **SL.3.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
- **SL.3.4** Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly in complete sentences at an understandable pace.
- **SL.4.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
- **SL.4.4** Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; adjust speech as appropriate to formal and informal discourse.
- **SL.5.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly
- **SL.5.4** Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; adapt speech to a variety of contexts and tasks.

Math

- **NC.K.OA.2** Solve addition and subtraction word problems, within 10, using objects or drawings to represent the problem, when solving:
  - • Add to/Take From-Result Unknown
  - • Put Together/ Take Apart (Total Unknown and Two Addends Unknown**)**
- **NC.K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way using** objects or drawings, and record each decomposition by a drawing or expression.
- **NC.K.OA.4** For any number from 0 to 10, find the number that makes 10 when added to the given number using objects or drawings, and record the answer with a drawing or expression.
- **NC.1.OA.1** Represent and solve addition and subtraction word problems, within 20, with unknowns, by using objects, drawings, and equations with a symbol for the unknown number to represent the problem, when solving:
  - • Add to/Take from-Change Unknown
  - • Put together/Take Apart-Addend Unknown
  - • Compare-Difference Unknown
- **NC.1.OA.2** Represent and solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, by using objects, drawings, and equations with a symbol for the unknown number.
- **NC.1.OA.3** Apply the commutative and associative properties as strategies for solving addition problems.
- **NC.1.OA.4** Solve an unknown-addend problem, within 20, by using addition strategies and/or changing it to a subtraction problem.
- **NC.2.OA.1** Represent and solve addition and subtraction word problems, within 100, with unknowns in all positions, by using representations and equations with a symbol for the unknown number to represent the problem, when solving:
  - • One-Step problems: Add to/Take from-Start Unknown o Compare-Bigger Unknown o Compare-Smaller Unknown
  - Two-Step problems involving single digits: Add to/Take from- Change Unknown o Add to/Take From- Result Unknown
- **NC.2.NBT.7** Add and subtract, within 1,000, relating the strategy to a written method, using:
  - • Concrete models or drawings
  - • Strategies based on place value
  - • Properties of operations
  - • Relationship between addition and subtraction
- **NC.2.MD.10** Organize, represent, and interpret data with up to four categories.
  - • Draw a picture graph and a bar graph with a single-unit scale to represent a data set.

    - • Solve simple put-together, take-apart, and compare problems using information presented in a picture and a bar graph.
- **NC.3.OA.3** Represent, interpret, and solve one-step problems involving multiplication and division.
    - • Solve multiplication word problems with factors up to and including 10. Represent the problem using arrays, pictures, and/or equations with a symbol for the unknown number to represent the problem.
    - • Solve division word problems with a divisor and quotient up to and including 10. Represent the problem using arrays, pictures, repeated subtraction and/or equations with a symbol for the unknown number to represent the problem.
- **NC.3.NBT.2** Add and subtract whole numbers up to and including 1,000.
    - • Use estimation strategies to assess reasonableness of answers.
    - • Model and explain how the relationship between addition and subtraction can be applied to solve addition and subtraction problems.
    - • Use expanded form to decompose numbers and then find sums and differences.
- **NC.3.NF.1** Interpret unit fractions with denominators of 2, 3, 4, 6, and 8 as quantities formed when a whole is partitioned into equal parts;
    - • Explain that a unit fraction is one of those parts.
    - • Represent and identify unit fractions using area and length models.
- **NC.3.MD.3** Represent and interpret scaled picture and bar graphs:
    - Collect data by asking a question that yields data in up to four categories.
    - Make a representation of data and interpret data in a frequency table, scaled picture graph, and/or scaled bar graph with axes provided.
    - Solve one and two-step “how many more” and “how many less” problems using information from these graphs.
- **NC.4.OA.3** Solve two-step word problems involving the four operations with whole numbers.
    - Use estimation strategies to assess reasonableness of answers.
    - Interpret remainders in word problems.
    - Represent problems using equations with a letter standing for the unknown quantity.
- **NC.4.NF.3** Understand and justify decompositions of fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100.
- **NC.5.NBT.7** Compute and solve real-world problems with multi-digit whole numbers and decimal numbers.
- **NC.5.MD.2** Represent and interpret data.

Science

- **1.L.1** Understand characteristics of various environments and behaviors of humans that enable plants and animals to survive.
- **1.L.2** Summarize the needs of living organisms for energy and growth.

Social Studies

- **K.G.2** Understand interactions between humans and the environment.
- **1.E.1** Understand the role of basic economic concepts in the decisions people make.
- **1.G.2** Understand interactions between humans and the environment in different places and regions around the world.
- **2.E.1** Understand how the availability of resources impacts economic decisions.
- **3.E.1** Understand how economic decisions and resources affect the local economy.
- **4.E.1** Understand how economic decisions and resources affect the economy of North Carolina.
- **5.E.1** Understand how economic decisions have impacted the United States in terms of consequence, growth, and trade.

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Background Agricultural Connections

Apples are the second most consumed fruit in the United States. On average, Americans consume 27 pounds of apples (fresh, canned, frozen, dried, or juiced) a year.[3] Because apple orchards attract numerous insects and diseases that cause damage to vegetation and fruit, both **organic** and **conventional** producers employ a variety of pest management practices to prevent, monitor, and eradicate pests.

Organic production is defined as "an ecological production system that integrates cultural, biological, and mechanical practices that foster resource cycling, ecological balance, and biodiversity."[4] Many inputs and practices commonly used in agriculture are prohibited by the national organic standards implemented in 2002 by the United States Department of Agriculture (USDA). Certified organic fruits are required to be produced without using most conventional **synthetic pesticides** and **fertilizers**, **genetic engineering**, **ionizing radiation**, **antibiotics**, and sewage sludge. **Conservation** of **natural resources** and **biodiversity** is mandatory. Any pesticides used must be included in the National List of Allowed and Prohibited Substances for use in organic production. USDA-accredited certifiers review farm applications and inspectors conduct annual on-site inspections of organic orchards. Farm records track all management practices and materials used in organic production, and organic farms must have an "organic farm plan" available to the public upon request.[4]

Conventional orchards use many of the same **biological** and **cultural controls** used by organic growers. In addition, conventional producers are permitted to use Restricted Use Pesticides (RUP) as part of their pest management program. A pesticide is classified as restricted if it requires specific application methods to prevent harm to humans or the environment. RUP pesticides are not available to the general public and may only be used by United States Environmental Protection Agency (EPA) certified applicators who have the knowledge and training to use them safely and effectively. Strict rules exist to control how much and which pesticides can be used on farms. Withdrawal restrictions prohibit pesticides from being applied immediately before harvest, minimizing the risk of carryover to the food supply. USDA's Pesticide Data Program (PDP) rigorously tests domestic and imported foods for pesticide residues to ensure that the U.S. food supply is safe.

Info from: https://northcarolina.agclassroom.org/lesson/673/

Apple Synonym Worksheet

Directions: Read each item. Choose the word(s) that mean the **same** or about the same as the underlined word.

1. Apples are <u>ripe</u> when most of the starch becomes sugar.

a. immature
b. aged
c. undeveloped
d. raw

2. The apples left on the tree can grow bigger because there is less <u>competition</u> for nutrients.

a. cooperation
b. assistance
c. excitement
d. struggle

3. New trees created by grafting or budding live in a <u>protected</u> nursery for about twelve months before they are replanted in an orchard.

a. guarded
b. insecure
c. unsheltered
d. vulnerable

4. As apples ripen, the amount of starch <u>decreases</u>, and it is converted to sugar.

a. develops
b. grows
c. lessens
d. raises

Name: _____

Date: _____

Apple Antonym Worksheet

Directions: Read each item. Choose the word(s) that mean the **opposite** of the underlined word.

5. The soluble fiber in apples works to regulate blood sugar and prevent its <u>sudden</u> fluctuation.

a. hurried
b. fast
c. slow
d. quick

6. Each variety of apples requires different conditions so computers help keep the specified conditions <u>constant</u>.

a. consistent
b. changeable
c. stable
d. unchanging

7. Since every apple seed is made from its own <u>unique</u> set of genetic material, you can plant 10 seeds from a single apple and get 10 entirely different kinds of apples.

a. specific
b. peculiar
c. usual
d. individual

8. The GoldRush variety is a great apple to grow because it has qualities that make it resistant to <u>common</u> diseases.

a. everyday
b. rare
c. familiar
d. simple

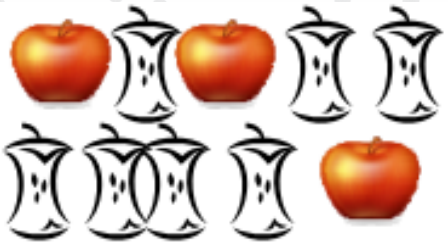
Name: _____

Date: _____

Apple Math Worksheet

Directions:
Choose the best answer.

1. Which fraction shows how many of the apples are whole?



a. 2/3
b. 3/5
c. 1/6
d. 3/10

2. If I had nine apples and I eat three apples and give two apples to my friend, Kim, how many apples do I have left?

a. 4
b. 5
c. 6
d. 7

3. We collected 12,840 apples from 3 orchards. The same number of apples were taken from each orchard. How many apples were taken from each orchard?

a. 4280
b. 9312
c. 6420
d. 2364

4. I picked 20 apples while at Mr. Rush's farm to take home and bake in a pie. If I used 50% of the apples I picked in my pie, how many apples did I use?

a. 10
b. 8
c. 12
d. 6

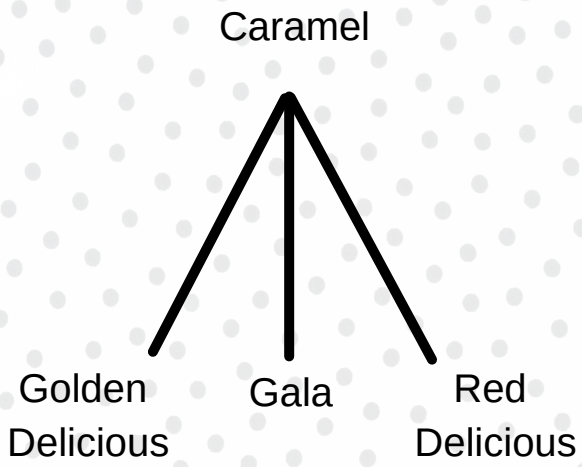
Name: _____

Date: _____

Source: http://www.agintheclassroom.org/TeacherResources/ISAT%20PDF%20FILES/Apple%20ISATS.pdf

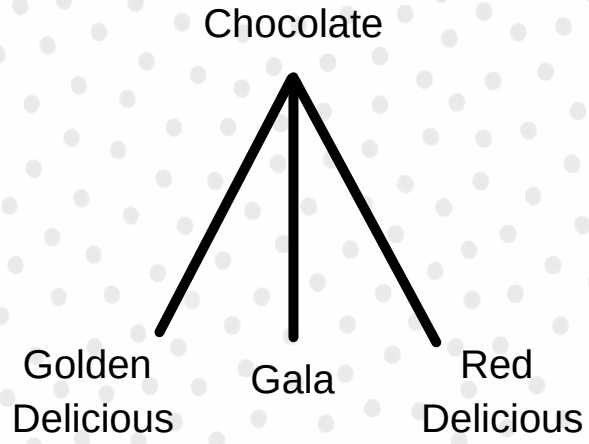
Read the following information and use the tree diagrams to answer questions 5 and 6.

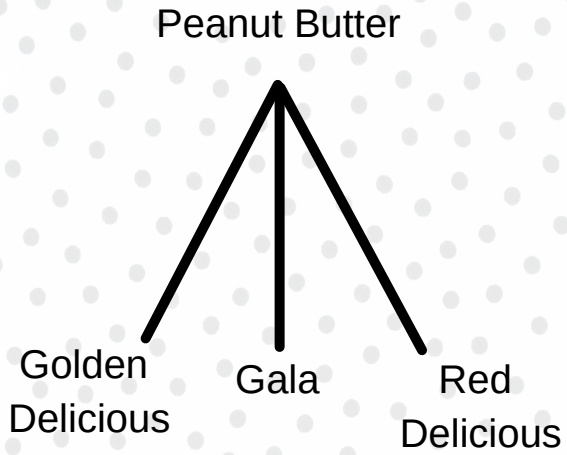
Jackie has a Golden Delicious apple, a Gala apple, and a Red Delicious apple. She has caramel, chocolate, and peanut butter to use as toppings for her apples.



5. How many possible choices does Jackie have to choose from?

a. 12
b. 9
c. 3
d. 6





6. If Jackie decides she doesn't want a Red Delicious apple, how many choices does she have?

a. 12
b. 9
c. 3
d. 6

Source: http://www.agintheclassroom.org/TeacherResources/ISAT%20PDF%20FILES/Apple%20ISATS.pdf