



## Holiday Bake Shop Homeschool Lesson Plan

### Overview

*Raddish is designed by a dedicated team of teachers and chefs who believe the kitchen classroom is the tastiest place to learn. We love watching learning come alive when kids mix math, stir science, and taste culture!*

*Paired with the materials found in your Holiday Bake Shop box, this lesson plan divides your box into three 45-90 minute lessons. You can use these lessons for students from pre-K – middle school and adapt them to suit your needs. Depending on your timeframe, child's age, and their engagement, these lessons can be taught together or separated.*

*Please refer to the curriculum provided in your box: recipe guides, activity card, and introduction card.*

*Happy cooking! Happy learning!*



## Lesson 1: Festive Pizza Wreath & Dough Science

Activity Time: 60 minutes

### LEARNING OUTCOMES

- Students will **learn** about the 5 fundamentals of pizza dough.
- Students will **read** Bread Basics from the recipe guide.
- Students will **discuss** what “bread” is.
- Students will **watch** a video to learn about the role of various ingredients in bread making.
- Younger students will **make** playdough.
- Younger students will **experiment** with part and whole relationships.
- Younger students will **observe, reflect** and **share** their new learning.
- Older students will **learn** about the scientific terms: *dependent variable, independent variable, and control or controlled variables*.
- Older students will **watch** a video to learn about the above terms.
- Older students will apply the above scientific learning to **design** an experiment that tests the effect of the fundamentals of dough.
- Older students will **share** the results of their dough experiments and **teach** friends and family about variables.
- Students will **make** and **share** Festive Pizza Wreath with friends and family.

### RESOURCES

- **Books**
  - Bread Around the World by John Serrano
- **Websites**
  - Bread Lesson Plan <http://www.scienceinschool.org/2012/issue23/bread>
  - Little Red Hen <http://www.gutenberg.org/files/18735/18735-h/18735-h.htm>
  - Playdough Lesson Plan <http://sciencenetlinks.com/lessons/ready-set-lets-dough-its-a-matter-of-system/>
- **Videos**
  - Scientific Variables (8:16) <https://www.youtube.com/watch?v=x2606GQmDqY>
  - How Yeast Works in Bread (4:14) <https://www.youtube.com/watch?v=ZXYZYKfjNBg>
  - How to Knead Dough (2:44) <https://www.youtube.com/watch?v=ySOj0fFWoIU>



## SCIENCE OF DOUGH

Notes for the Teacher:

- The introduction questions are for activating previous knowledge, not for providing answers right away. This allows for students to connect the new learning with constructs they already understand.
- **Younger students** need a lot of experiences to truly understand a concept. This lesson gives students the opportunity to creatively explore the idea that individual parts are used to make a whole and that the parts come together to make a whole that has properties that the parts do not.
- **Older students:** For the experiment with variables, you first need to decide how many experiments you want to do. If you are going to do only one experiment (change one independent variable one time- for example add an extra cup of flour), I would recommend making a full batch of dough. However, if you are going to do a number of experiments (change one variable a number of times- for example add more flour in one experiment, double the yeast in the next experiment, etc.) I would recommend cutting the recipe in half or quarters. This saves on ingredients and potential food waste as well as posing a great math challenge to the students.

Teacher Prep:

- **Collect Materials:**
  - Introduction
    - Different types of bread and non-bread (crackers)
  - For Playdough (use your favorite recipe or:)
    - 1 cup flour
    - ½ cup salt
    - 2 teaspoons cream of tartar
    - 1 cup water
    - 1 tablespoon oil
    - 1 package of Koolaid (optional for color)
    - wooden spoon
    - pot
    - measuring cups and spoons
  - For Bread Experiment
    - Recipe Guide
    - Flour
    - Water
    - Yeast (a few packets)
    - Bowl
    - Timer



- For Older Students
  - Scientific Variables  
(8:16) <https://www.youtube.com/watch?v=x2606GQmDqY>
- How Yeast Works in Bread  
(4:14) <https://www.youtube.com/watch?v=ZXYZYKfjNBg>

## LESSON

- Introduction:
  - **Bring** a selection of breads (English muffin, sliced white, brown, etc.) and non-breads (Matzah, crackers, etc.)
  - **Ask** students:
    - What are all these different things? Can you name the types?
    - Are they all bread? Why or why not?
    - Which kinds do you like and why?
    - What does bread feel like? Smell like? Look like? Etc.
    - Do you know what ingredients you need to make bread? Do you know why it is used in bread?
- Information:
  - **Watch-** How Yeast Works in Bread  
(4:14) <https://www.youtube.com/watch?v=ZXYZYKfjNBg>
  - **Discuss-**
    - Why is yeast a monster? What does it do?
    - Why is gluten important?
    - What food does yeast eat?
    - Do you think you could make bread?



## YOUNGER STUDENTS

### SCIENCE OF DOUGH: PART TO WHOLE RELATIONSHIP

- In this activity students will **explore** parts, **combine** them to make a whole, **discuss** and **experience** how the whole is different from the parts.
- **Set up**
  - ingredients for playdough making (see materials list above or use your own favorite recipe)
  - A white board or chart paper to record
- **Ask** students the following questions and **record** their answers in the chart:
  - The names of the ingredients?
  - What they look like?
  - What they feel like?
  - What they smell like?
  - Do you think that you could take all these things and make something that is completely different than the individual ingredients?
  - Do you think we could make something from these ingredients? Why or why not?
  - What ideas do you have that we could make?
- **List** the students' ideas.
- **Tell** them that today you are going to use all these parts to make one new thing.
- **Make** playdough together:
  - **Put** out the tools
  - Help the students to **measure** and **combine** all the ingredients into the pot.
  - Encourage students to make **observations** about the combined ingredients.
  - **Cook** ingredients on medium heat until the mixture has the consistency of mashed potatoes.
  - **Turn** the dough out onto waxed paper.
  - While it is cooling have the students **watch** a video to learn how to knead- How to Knead Dough (2:44)  
<https://www.youtube.com/watch?v=ySOj0fFWoIU>
  - When it is cool enough to handle, have the students take turns kneading.
- **Ask** students, and **record** relevant answers in a new column of the original table:
  - What does it feel like?
  - What do you think we have made?
  - Is this like any of the starting ingredients/parts? Why or why not?
  - How is this substance different than what we started with?
  - What do you think would happen if..
    - we left out the water? Oil? Flour?
    - we added more flour? Salt?
  - Is there a way we could find out?
  - Do you think that each of the parts/ingredients that we added was important? Why or why not?



- Do you think we could get our original ingredients/parts out of the new substance?
- Do you see, smell, feel any evidence of the original ingredients?
- Help students to **transfer the learning** from this experience to other things that they know. **Ask:**
  - Have you ever seen parts put together to make a whole substance that is different?
  - Where have you seen this?
  - What were the parts and what was the whole?
- **Write** the following cloze sentences for students to complete either individually or together.
  - The \_\_\_\_\_ was like the playdough because \_\_\_\_\_.
  - The \_\_\_\_\_ was different than the playdough because \_\_\_\_\_.
- **Conclude** by asking the students what they think they learned today? **Record** their answers.

Extension:

- Build a creation or creature with the playdough and other supplies (toothpicks, pipe cleaners, anything on hand). Ask:
  - Was your creation unique?
  - How did using different parts allow you to make your creature different than others?
  - Would your creation change if you added a new part? Took a part away?
- Have students bring in items and describe how they are made up of parts that may have different properties than the whole.



## SCIENCE OF DOUGH: WHAT IS A VARIABLE?

OLDER STUDENTS

- Introduction:
  - **Ask** the students:
    - When we conduct an experiment, what things do we need to think about? (*activating prior knowledge*)
  - **Watch** Scientific Variables (8:16) <https://www.youtube.com/watch?v=x2606GQmDqY>
    - Stop the video whenever the teacher character asks a question to give the students a moment to think and try out their answer.
    - Have the students take notes on the terms: independent variable, dependent variable, and control(s).
  - **Discuss** with the students what they feel they learned or already knew from the video.
- Information:
  - **Review** definitions:
    - **Dependent Variable**- what you observe or measure
    - **Independent Variable**- the thing you decide to change in an experiment
    - **Control(s)**- the thing(s) you keep the same--they do not change
  - **Ask**:
    - Why is each one an important part of an experiment?
    - What would happen if we had two independent variables? Etc.
  - **Read** and **review**:
    - The **Bread Basics** section of the recipe guide.
    - What are the jobs of each of the fundamentals in making dough?
- Dough Science: Experiment with Variables
  - **Decide** how many experiments the students will conduct (see teacher notes above) and **collect** the necessary ingredients and tools. **Use** the dough recipe from the Festive Pizza Wreath recipe guide.
  - Have students **read** the recipe steps 1, and 2.
  - **Ask** the students how they will set up their experiment.
    - First, have them **talk** it through.
      - What do you want to test? What is that thing called?
    - Second, have them make a **plan** on paper, making sure to include:
      - **Prediction**- Knowing what you know about bread, what do you think changing the independent variable will do? This will tell you what the dependent variable is.
      - **Dependent Variable**
      - **Independent Variable**
      - **Control(s)**
  - **Support** students in conducting their experiments.
  - Have students **record** their results.



- Have students **share** their results. **Ask:**
  - How did changing the independent variable affect the dependent variable?
  - What kind of dough did you end up with?
  - Would you want to eat it? Why or why not?

Extension:

- **Read** Bread Around the World by John Serrano, or any similar book.
  - Have students **discuss** the different kinds of bread.
  - Ask them:
    - Why do you think they are different? What do you think is similar?
    - How are food and culture connected?
    - What role does bread play in celebrations?
- Have students conduct other experiments focusing on the variables.





## COOKING FESTIVE PIZZA WREATH

### Kitchen Prep

- Read the Festive Pizza Wreath recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the Oven Safety.
- Discuss kitchen safety. Specifically, Oven safety (Visit [Raddishkids.com/pages/safety](http://Raddishkids.com/pages/safety)).

### Prepare Festive Pizza Wreath

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to measure, cut and toss.
- When the Festive Pizza Wreath is ready, eat, taste and share!
- While your friends and family are eating, Younger Students can talk about the different ingredients/parts that went into making the pizza and how they changed when mixed together. Older Students, share what you learned about Bread Basics: what ingredients go into making dough and what jobs do they have.



## Lesson 2: Chocolate Peppermint Crunch Cookies & Cookie Math

Activity Time: 45 minutes

### LEARNING OUTCOMES

- Students will **learn** the history of cookies.
- Students will **use** adjectives in describing their favorite cookies.
- Younger students will **learn** that estimation is an educated guess.
- Younger students will **practice** with estimation strategies.
- Older students will **read** the book Sir Cumference and the First Round Table.
- Older students will **learn** the terms circumference, diameter, and radius.
- Older students will **investigate** the formulas for circumference, diameter, and radius.
- Older students will **demonstrate** understanding of the formulas by using the associative property to **manipulate** the formulas.
- Older students will **calculate** circumference, diameter, and radius.
- Students will **make** and **share** Chocolate Peppermint Crunch Cookies with friends and family.

### RESOURCES

- **Books**
  - If You Give a Mouse a Cookie by Laura Numeroff
  - Sir Cumference and the First Round Table by Cindy Neuschwander or watch it read here (14:08) <https://www.youtube.com/watch?v=4ZjU3-jXGBo>
  - Math Snacks: Problem-Solving fun with Food Manipulatives by Eliza Sorte
- **Websites**
  - <https://www.mathsisfun.com/geometry/circle.html>
  - <http://www.ducksters.com/kidsmath/circle.php>
  - <https://www.khanacademy.org/math/basic-geo/basic-geo-area-and-perimeter/area-circumference-circle/v/circles-radius-diameter-and-circumference>
  - <http://www.mathwarehouse.com/dictionary/A-words/definition-of-associative-property.php>
  - <https://www.prekinders.com/water-estimation-jars/>
- **Videos**
  - Circles: radius, diameter, circumference, pi- (11:07) <https://www.youtube.com/watch?v=jyLRpr2P0MQ>
  - Sesame Street- Holiday Estimation with Guy Smiley (3:50) <https://www.youtube.com/watch?v=dy7MH2hZx9o>



## COOKIE MATH

Notes for the Teacher:

- For this lesson it would be helpful if you familiarize yourself with the mathematics involved in:
  - calculating circumference, radius and diameter. See below for some videos and books that could be helpful.
  - The associative property means that you can add or multiply regardless of how the numbers are grouped, i.e. it doesn't matter what order they come in.
    - For example,  $2+5$  is the same as  $5+2$ , and  $2 \times 5$  is the same as  $5 \times 2$ .
- Teaching estimation isn't just about guessing, but that is where it starts.
  - It is important to explain to students that estimating is like guessing, something that they are already familiar with.
  - With estimation you want to make an educated guess that is as accurate as possible. It may be helpful to give students some examples of times that you use estimation. For example, when grocery shopping to make sure you have enough money to pay for what you want to buy.
  - Teach children to filter out unnecessary information and focus only on the subject to be estimated. For example, pour a bag of M&M's into a bowl, then ask the students to estimate how many brown ones there are (ignoring all the rest of the colors)
  - Teach students the language of estimation. Teach and use words like "approximately", "about", "more or less."
  - Teach the students to strategize. Instead of random guessing use clues that are around you, such as visual cues.
  - Estimation is a skill that takes lots of repetition. You could make it a regular part of your week to have an estimation station.
- Teaching estimation to K-1 students:
  - Always provide a benchmark to base the guess on. (If this jar has \_\_\_\_ then how many does this jar have?)
  - Use quantities less than 25
  - Using a number line is helpful.
  - An example: Estimation ideas- <https://www.prekinders.com/water-estimation-jars/>

Teacher Prep:

- **Collect Materials:**
  - Cookies of different types
  - Paper and art supplies for drawing cookies
  - Younger student activity:
    - cookies
    - clear jars
    - Paper and pencil to record estimations



- Older student activity:
  - Paper and pencil for math calculations
  - Different size cookies or paper cut outs
  - Ruler and string for measuring
- Read
  - Sir Cumference and the First Round Table by Cindy Neuschwander or watch it read here (14:08) <https://www.youtube.com/watch?v=4ZJU3-jXGBo>
- Watch
  - Circles: radius, diameter, circumference, pi- (11:07) <https://www.youtube.com/watch?v=jyLRpr2P0MQ>

Lesson:

- Introduction:
  - **Ask** students to:
    - Close their eyes and **imagine** their favorite cookie. Set the scene for them to really get in touch with all aspects of the cookie. (flavor, texture, ingredients, shape, temperature, size, color, etc.)
    - Open their eyes and **draw** their cookie.
    - **Describe** their favorite cookie either in writing or verbally. (soft, chewy, crunchy, crumbly, melty, gooey, light, crispy, chocolatey, etc)
- Information:
  - **Share** some history and facts about cookies:
    - a cookie is a thin, sweet, usually small cake
    - by definition, can be any variety of hand-held, flour-based sweet cakes, either crisp or soft.
    - Different countries have different names for cookie:
      - England and Australia- biscuits
      - Spain- galletas
      - Germany- keks or Plzchen for Christmas cookies
      - Italy- amaretti or biscotti
    - **Ask:** Do you know any more names for cookies?
    - The first historic record of cookies was that they were used as test cakes to see if the oven temperature was right before baking a whole cake.
    - The first chocolate chip cookie was invented in 1937 by Ruth Graves Wakefield, of Whitman Massachusetts, who ran the Toll House Restaurant.

## COOKIE MATH: COOKIE ESTIMATION

- **Watch:** Sesame Street- Holiday Estimation with Guy Smiley (3:50) <https://www.youtube.com/watch?v=dy7MH2hZx9o>
- **Pause** after the first estimation of the dancing chickens and **ask:**
  - How do you think both Bert and the Estimation Crustacean came up with their estimate?
- **Pause** after the second estimation of the sheep and **ask:**
  - How do you think both Bert and the Estimation Crustacean came up with their estimate this time?
  - Did Bert change the way he estimated? How?
- **Refer back** to the Teacher Notes about estimation and practice some of the strategies and ideas with the students.
- **Look** at the example <https://www.prekinders.com/water-estimation-jars/>, and structure your example based on the age and developmental of your students. Younger more scaffolding (jars) older less comparative examples.
- Have students **estimate** with cookies:
  - **Put** cookies in one or more jars and **label** the amount. Then put another number of cookies in another jar and have the students **estimate**.
  - Help them with estimation **language:**
    - “Based on what I see “If this jar has \_\_\_\_ then how many does this jar have?”
    - My first estimation was way too high, so it must be less.
    - I think there are *around, approximately, more or less* cookies.
- **Repeat** the estimation activity with a different size of cookies or another item.
- **Discuss** does estimation get easier the more you do it? Why?

### Extension:

- **Read** If You Give a Mouse a Cookie by Laura Numeroff and do some of the activities described here <http://www.hubbardscupboard.org/family-night/>
- More estimation ideas
  - Raisin Box Estimation  
<https://books.google.de/books?id=TxmKvwxNII4C&pg=PA115&dq=how+many+raisin+in+a+box+estimation+activity&hl=de&sa=X&ved=0ahUKewjwyojKxtTXAhUF2qQKHe8FCNcQ6AEILzAB#v=onepage&q=how%20many%20raising%20in%20a%20box%20estimation%20activity&f=false>



## COOKIE MATH: COOKIE CALCULATIONS

OLDER STUDENTS

- **Ask** students:
  - What do you know about circles? (activate prior knowledge)
    - Some answers may include- they are round, one continuous arc, no corners or vertices, like a wheel, etc.
- Let students know that you are going to read a fairytale about geometry and the origin of Radius, Diameter, and Circumference.
- **Read** Sir Cumference and the First Round Table by Cindy Neuschwander or watch it read here (14:08) <https://www.youtube.com/watch?v=4ZJU3-JXGBo>.
- **Read** the Cookie Calculations section of the recipe guide.
- **Discuss** the meaning of the terms below and have students connect them to the story.
  - Radius
  - Diameter
  - Circumference
- **Ask** students:
  - How are radius and diameter related? How are they different?
    - (They are both measures of distance. Radius is half of diameter.)
    - **Refer back** to the book for assistance.
  - Do any 2 radii make a diameter? Why not?
    - (Two radii must be on the same line in order to make a diameter.)
- Have students **explore** the formulas in the Cookie Calculations.
  - Discuss and show different ways to write the calculations.
    - Radius= $r$ , Diameter= $d$ , Circumference= $C$
    - The formula for Circumference can be written:
      - $C = \pi d$  or
      - $C = 2\pi r$
  - **Ask** students:
    - How are the two formulas for circumference similar?
      - (both have  $\pi$ )
    - For now, **tell** students that  $\pi$  is a symbol used to represent a special number that equals approximately 3.14. (See extensions for more on  $\pi$ )
    - **Rearrange** the formula  $C = 2\pi r$  by using the associative property to  $C = \pi(2r)$ .
      - This may help the students to see that  $2r$  is equal to  $d$  in the circumference formula. (Again you can go back to the story to illustrate this point).
    - **Challenge** the students to use the associative property to rearrange the formulas for radius and diameter. ( $2r = d$  or  $(1/2)d = r$ ).
  - **Provide** students with:
    - a couple different kinds of cookies of different sizes (or cut out circles)
    - string
    - ruler
    - pencil and paper



- **Ask** them what information they need to be able to calculate the:
  - circumference? (radius or diameter- see the equations above and  $\pi$ )
  - radius? (circumference,  $r = C \div 2\pi$ , or diameter,  $r = d \div 2$ , and  $\pi$ )
  - diameter? (radius,  $d = 2r$ , or circumference,  $d = C \div \pi$ , and  $\pi$ )
- Ask the students to **calculate** and **record** the radius, diameter, and circumference of the cookies.
- As the students are working, **observe** what strategies they are using and ask them to explain their mental mathematical reasoning.
  - This metacognitive work (thinking about how they think) will help to solidify their understanding and help you to see if they understand.

Extension:

- Math worksheets <https://www.homeschoolmath.net/worksheets/circle.php>
- Challenge students to find circles around the home and calculate the radius, diameter and circumference
- Read Sir Cumference and the Dragon of Pi



## COOKING CHOCOLATE PEPPERMINT CRUNCH COOKIES

### Kitchen Prep

- Read the Chocolate Peppermint Crunch Cookies recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the **Featured Culinary Skill Baking Cookies**
- Discuss kitchen safety. Specifically, oven safety (Visit [Raddishkids.com/pages/safety](http://Raddishkids.com/pages/safety)).

### Prepare Chocolate Peppermint Crunch Cookies

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to measure, crush, and roll.
- When the Chocolate Peppermint Crunch Cookies are ready, eat, taste and share!
- While your friends and family are eating, younger students can set up an estimation activity. And then teach some estimation strategies. Older students can explain the relationship between radius, diameter and circumference.





**Lesson #: Gingerbread Muffins  
& Whole Grain**  
Activity Time: 60 minutes

## LEARNING OUTCOMES

- Students will **learn** about the health importance of whole grains.
- Students will **read** Baking with Whole Wheat from the recipe guide.
- Students will **discuss** what the 3 parts of a grain and what their roles are.
- Students will **watch** a video to learn about how flour is made.
- Younger students will **observe** and **draw** a whole grain before and after grinding.
- Younger students will **observe**, **reflect** and **share** their new learning.
- Older students will **learn** about the specific health benefits associated with nutrients found in whole grains.
- Older students will **learn** the names of many types of grain.
- Older students will **apply** the above learning to researching one grain.
- Older students will **create** and **share** their learning in the form of a commercial to **teach** friends and family about the benefits of whole grains.
- Students will **make** and **share** Gingerbread Muffins with friends and family.

## RESOURCES

- **Books**
  - Pancakes! Pancakes! By Eric Carle
  - Little Red Hen Old English Folktale <http://www.gutenberg.org/files/18735/18735-h/18735-h.htm>
- **Websites**
  - <https://www.pbslearningmedia.org/resource/bbdd52f2-8721-487a-8273-e77f307fc1d1/bbdd52f2-8721-487a-8273-e77f307fc1d1/>
  - [https://wholegrainscouncil.org/resources/school-lesson-plans-and-educational-materials/elementary-school-lessons-plans-educational#Elementary\\_AICR\\_toolkit](https://wholegrainscouncil.org/resources/school-lesson-plans-and-educational-materials/elementary-school-lessons-plans-educational#Elementary_AICR_toolkit)
  - [www.kidzworld.com/articles/547-how-popcorn-pops](http://www.kidzworld.com/articles/547-how-popcorn-pops)
  - <https://wholegrainscouncil.org/whole-grains-101/whole-grains-z>
- **Videos**
  - Whole Grains- Fizzy's Lunch Lab Attack of the Pizzanators (6:58) <https://ny.pbslearningmedia.org/resource/bbdd52f2-8721-487a-8273-e77f307fc1d1/bbdd52f2-8721-487a-8273-e77f307fc1d1/#.WhgyOROPJoE>
  - Lunch Lab Live - Meet White and Wheat Bread (1:45) <https://ny.pbslearningmedia.org/resource/bbdd52f2-8721-487a-8273-e77f307fc1d1/bbdd52f2-8721-487a-8273-e77f307fc1d1/#.WhgyOROPJoE>
  - How it's Made Flour (4:50) <https://www.youtube.com/watch?v=0gITBy-N6X0>



## GREAT GRAINS

### Notes for the Teacher:

- For the younger student activity, you will need to get approximately  $\frac{1}{4}$ - $\frac{1}{2}$  cup of whole wheat grains per student. It is important that the grains are not ground!
- It would be very helpful for this lesson if you had a variety of whole grains that students could touch, see and explore. A trip to a bulk store would yield a small amount of different grains for not much cost.

### Teacher Prep:

- **Collect Materials:**
  - Younger Students
    - A piece of paper folded in half (landscape) for drawing before and after
    - Drawing tools
    - Mortar and pestle (if you don't have one, use a rolling pin, blender, or coffee grinder)
    - Fine mesh sieve
    - Whole grain (wheat works best)
  - Older Students
    - Materials for Wonderful Grains Project dependent on how they will present
    - Commercial- video equipment
    - Poster- paper, glue etc.

### Lesson:

- Introduction:
  - **Read** with students the **Baking with Whole Wheat** section of the recipe guide.
    - What are the three components of a grain kernel or berry?
    - What job do you think they each do?
  - **Discuss** that wheat is just one kind of grain.
  - **Ask** students what other grains they can name. Some examples are:
    - oats
    - quinoa
    - brown, red or purple rice
    - corn
    - rye
    - barley
    - spelt
- Information: Why are whole grains healthier?
  - **Watch**
    - Whole Grains- Fizzy's Lunch Lab Attack of the Pizzanators (6:58)  
<https://ny.pbslearningmedia.org/resource/bbdd52f2-8721-487a-8273-e77f307fc1d1/bbdd52f2-8721-487a-8273-e77f307fc1d1/#.WhgyOROPJoE>



- Lunch Lab Live - Meet White and Wheat Bread (1:45)  
<https://ny.pbslearningmedia.org/resource/bbdd52f2-8721-487a-8273-e77f307fcd1/bbdd52f2-8721-487a-8273-e77f307fcd1/#.WhgyOROPJoE>
- **Ask** the students:
  - What the difference is between white flour and whole wheat flour?
  - What do they mean when they say wheat is sweet and white is all right?
  - Why is it important for people to eat whole grains?



## GRINDING GREAT GRAINS

YOUNGER STUDENTS

- Grind the Grain:
  - **Collect** tools as listed above.
  - **Read** with students the **Baking with Whole Wheat** section of the recipe guide.
  - **Provide** students with whole grains and have them:
    - **hold, observe** and **talk** about what they see
    - **draw** a picture of the whole grain (draw on one half of the paper)
    - **tell** what part of the grain they can see and **label** their drawing
  - **Demonstrate** to the students how to safely use a mortar and pestle or other tool.
  - **Have** students:
    - **grind** the grain
    - **touch, observe** and **talk** about how the grain is different than it was before.
    - **sieve** the ground up whole wheat flour to allow the endosperm to fall through.
    - **draw** what the grain looks like now (draw on the other half of the paper)
    - **label** the parts of the grain they can see now on their drawing
  - **Review** with the students the benefits of eating whole grains.
  - **Teach** students that they should try to eat 3 servings of whole grains every day.
    - Examples of a serving are:
      - ½ cup cooked brown rice
      - ½ cup cooked 100% whole grain pasta
      - ½ cup of cooked oatmeal
      - 1 slice of 100% whole grain bread
  - Have students **plan** a one-day menu (breakfast, lunch, dinner and snacks) that includes 3 servings of whole grains.

### Extension:

- Go on a Whole Grain Scavenger Hunt in your house or supermarket. What products can you find that have whole grains.
- Do a whole grain challenge: try a new grain every week.
- Why does popcorn pop? It's because it is a whole grain! Learn more [www.kidzworld.com/articles/547-how-popcorn-pops](http://www.kidzworld.com/articles/547-how-popcorn-pops)



## HEALTHFUL GREAT GRAINS

OLDER STUDENTS

- Whole grain greatness!
  - **Refer** to the list of grains that the students brainstormed in the introduction.
  - Have students **research** more grains.
    - Look here for a complete list: <https://wholegrainscouncil.org/whole-grains-101/whole-grains-z>
  - Have the students make a **list** with two categories:
    - grains they have tried
    - grains they have not tried
  - **Teach** the students that:
    - Foods made with whole grains contain all the parts of the original in the original proportions.
    - Refined grains have had the bran and the germ removed along with 25% of the protein and 17 vital nutrients.
    - Whole grains have: (post a list)
      - **Fiber**- Protects you from cancer, keeps you from getting constipated and is good for your heart.
      - **Folate**- Helps to build new cells so they can stay healthy.
      - **Thiamin, Riboflavin and Niacin**- Keep your body's cells working correctly.
      - **Iron**- Provides oxygen to your blood.
      - **Magnesium**- Helps build strong bones.
      - **Selenium**- Helps your immune system keep you from getting sick
  - Have the students go back to their lists of grains and **choose** a grain that they have not tried.
  - **Tell** the students that their job is to tell the world how wonderful this grain is!
  - The students will **create**:
    - An informational video
    - A commercial for television
    - A poster
    - Etc.
  - The above must include:
    - the vitamins
    - the minerals
    - the fiber content
    - a food or recipe that you can find the grain in
    - a convincing story to pitch the grain as a food you want to eat!

### Extension:

- Go on a Whole Grain Scavenger Hunt in your house or supermarket. What products can you find that have whole grains.



- Do a whole grain challenge: try a new grain every week.
- Why does popcorn pop? It's because it is a whole grain. Learn more [www.kidzworld.com/articles/547-how-popcorn-pops](http://www.kidzworld.com/articles/547-how-popcorn-pops)



## COOKING GINGERBREAD MUFFINS

### Kitchen Prep

- Read the Gingerbread Muffins recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the Featured Culinary Skill **Mastering Measuring Spoons**
- Discuss kitchen safety. Specifically, handwashing (Visit [Raddishkids.com/pages/safety](http://Raddishkids.com/pages/safety)).

Prepare Gingerbread Muffins Ask children to read or describe each step.

- Together, follow the steps in the recipe.
- Give each child a turn to measure, add and mix
- When the Gingerbread Muffins are ready, eat, taste and share!
- While your friends and family are eating, younger students can show their drawings of the wheat berry before and after grinding and teach about the different parts of the grain. Older students can present/perform their Wonderful Grain Project.