



Spring Brunch 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 SPRING BRUNCH 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 #: AVOCADO EGGS BENEDICT
& PORTMANTEAUS**

Activity Time: 45 minutes

LEARNING OUTCOMES

- Students will learn the definition of a portmanteau.
- Students will compare portmanteaus with compound words.
- Students will develop creativity in word formation.
- Students will express their personality with written/spoken language.
- Students will be encouraged to be playful with vocabulary.
- Younger students will be challenged to create their own and generate definitions for other portmanteaus.
- Younger students will represent one or more portmanteaus artistically.
- Older students will search for portmanteaus in literature.
- Older students will compose an original piece of writing using portmanteaus.
- Students will read and practice with Featured Culinary Skill - Cutting an Avocado
- Students will make and share Avocado Eggs Benedict with friends and family.



YOUNGER STUDENTS

PORTMANTEAU LESAN (LESSON + PLAN)

Notes for the Teacher:

- In this activity, it is important to model that language can be playful and flexible. Have fun with making up silly combinations of words and do not stifle creativity in your students. There are no wrong answers as long as a part of each word is included.
- For the Gallery walk, you can model supportive ways to comment and appreciate each other's work. This helps to improve both communication skills and empathy in your students.
 - "I notice that you used ..."
 - "I see in your piece of art..."
 - "It looks to me like..."
 - "I can tell you spent a lot of time..."
 - "The colors really..."
 - "What did you mean by..."

Teacher Prep:

- Collect Materials:
 - Picture of brunch (from a magazine or Google images)
 - Paper and pencil
 - For student illustrations:
 - watercolors
 - markers or crayons
 - collage
 - glue, scissors, colored paper, magazines etc.



Lesson: What is a Portmanteau?

Introduction:

- Show students a picture of a brunch table, with the word BRUNCH written clearly underneath.
- Ask:
 - Do you know what BRUNCH is?
 - It is a meal eaten late in the morning to early afternoon.
 - Can you guess which two words are squished together to make up the word brunch?
 - Why do you think someone made up this word?
 - Can you think of another word that would work to mean the same thing?
- Explain that this kind of word, with two words squished together, is called a portmanteau.
- Share a couple more examples of portmanteaus to get them warmed up.
 - liger – lion + tiger, the baby of a lion and a tiger
 - motel – motor + hotel, designed so that you can drive up to the door of your room
 - smog – smoke + fog, a form of air pollution that has the qualities of both smoke and fog.
- Tell the students that today they are going to learn about where the idea for portmanteaus came from and get the chance to play with words to make up their very own new portmanteaus.

Background Information:

- Share the history of portmanteau:
 - The word portmanteau was first used to describe a kind of suitcase that opened in two equal sections.
 - It comes from two French words “porter” (pronounced *por- tay*) which means “to carry”, and manteaux (pronounced *mon- toe*) which means “cloak or coat”.
 - The word portmanteau was first used to describe two squished together words by Lewis Carroll, the author of Alice in Wonderland.
- Read the Breakfast & Lunch section of the Avocado Eggs Benedict recipe guide together
 - Ask:
 - Do you recognize any of the words from the list? If so where from?
 - Do you remember what a compound word is?



- A word that combines two complete words, like butterfly or sandcastle.
- Can you think of other compound words?
- How is a compound word different from a portmanteau?
 - A portmanteau uses parts of two words squished together not whole words. But in both cases the meaning of the words put together is different from the two words used apart.



Activity – Create your own Portmanteaus:

- Play with words together with your students to make up some original portmanteaus. For example:
 - smry- smile + cry- when you are so happy that you are smiling and crying at the same time
 - troat- train + boat- a train that goes on a boat
- After the students are warmed up, challenge them to brainstorm a list of 5 portmanteaus. Have them write or dictate their list but without definitions.
- Swap lists between students.
- Try to guess the definitions of the portmanteaus on each other's lists.
- Have the students illustrate one or more of the portmanteaus with watercolors, markers, crayons, or a collage.
- Display student portmanteau illustrations and have a gallery walk for students to comment on and appreciate one another's work.

Extension:

- Write a sentence to go with the portmanteau illustration.
- Create a silly story or poem using as many of the portmanteaus that you made up as possible.
- Read some of the books in the book list (found at the end of this lesson) and challenge students to be portmanteau hunters.



OLDER STUDENTS

PORTMANTEAU LESAN (LESSON + PLAN)

Notes for the Teacher:

- Portmanteaus are also known as Frankenwords!
- In this activity, it is important to model that language can be playful and flexible. Have fun with making up silly combinations of words and do not stifle creativity in your students. There are no wrong answers as long as a part of each word is included

Teacher Prep:

- Collect Materials:
 - A copy of Jabberwocky (optional)
 - Access to the internet
 - Books and movies that include portmanteaus
 - Writing supplies
- Read
 - Jabberwocky <https://www.poets.org/poetsorg/poem/jabberwocky>
- Watch
 - A good overview of the concept with differentiation from contractions and compound words. Portmanteau (2:56) https://www.youtube.com/watch?v=045_Z5_HLEA



Introduction:

- Read the Breakfast & Lunch section of the Avocado Eggs Benedict recipe guide
- Ask:
 - Do you recognize any of the words from the list? If so where from?
 - Do you remember what a compound word is?
 - A word that combines two complete words, like butterfly or sandcastle.
 - Can you think of other compound words?
 - How is a compound word different from a portmanteau?
 - A portmanteau uses parts of two words squished together while a compound word combines two whole words. But in both cases the meaning of the words put together is different from the two words used apart.
- Tell the students that today they are going to learn about the history of portmanteaus, search them out in books and movies, and compose their very own piece of writing using this fun literary technique.



Background Information:

- Share with students that a portmanteau is a literary device.
 - Portmanteau is the art of blending two or more words together to make a new word with its own special meaning.
 - This literary device is a fun way to pack two or more words together to create a new word with a different meaning.
 - The actual word portmanteau means suitcase, as it is derived from the two French words “porter” (pronounced *por- tay*) which means “to carry”, and manteaux (pronounced *mon- toe*) which means “cloak or coat”.
 - The art of using portmanteaus in writing is sometimes talked about like “unpacking your suitcase” to write creatively.
- Explain the history of portmanteau.
 - The word portmanteau was first used to describe two squished together words by Lewis Carroll, in Through the Looking Glass in 1871.
 - In the story:
 - Humpty Dumpty explains to Alice the naming of the unusual words in “Jabberwocky” like mimsy meaning both miserable and flimsy
 - Humpty Dumpty says, “You see it’s like a portmanteau—there are two meanings packed up into one word.”
- Ask students:
 - Why do you think you should use portmanteau in your writing? Have students turn to a partner and share their ideas.
 - Some ideas are that portmanteaus:
 - add a lot of flair to writing
 - can make your writing come alive
 - Make great pictures in a reader’s mind because they have to decipher the word and apply their own thinking to it
 - add originality to your writing
- Instructions for Experiment/Worksheet/Activity:
 - Ask students where they have seen portmanteaus in literature, movies, or social media?
 - Some examples are:
 - J.K. Rowling has tons but one example is *animagus* (animal + magus) to describe a witch or warlock that can transform into an animal.
 - Roald Dahl, in the BFG a *whizzpopper* a fart that causes you to fly through the air.



- Mary Poppins *supercalifragilisticexpialidocious* means something like extremely wonderful.
- Jeggings (jeans + leggings) stretchy pants that look like jeans.
- More examples can be found at <https://www.deseretnews.com/top/3194/0/18-of-the-best-made-up-words-from-childrens-literature-and-Disney-movies.html>
- If you have any of the books mentioned above or in the book list you could make them available to the students.
- After students have an opportunity to see portmanteaus in action, discuss with them:
 - Do you think portmanteaus are an effective literary device? Why or why not?
 - How do they affect your understanding or feeling of a piece of writing?
- Inform students that now it is their turn to write a piece using portmanteaus. They may:
 - Compose a poem.
 - Write a small moment story
 - For more info on this watch: (2:38) <https://www.youtube.com/watch?v=f1UctktEyds>
 - Describe a person or a place
 - Edit an existing piece of your writing and add portmanteaus.



Extension:

- Read lists of portmanteaus and try and incorporate them into your everyday vocabulary.
 - https://en.wikipedia.org/wiki/List_of_portmanteaus
 - <https://www.vappingo.com/word-blog/86-great-examples-of-portmanteau/>
 - <https://www.deseretnews.com/top/3194/0/18-of-the-best-made-up-words-from-childrens-literature-and-Disney-movies.html>
- Read how authors created the words that we use every day.
<https://www.theguardian.com/books/2014/jun/17/authors-invented-words-used-every-day-cojones-meme-nerd>
- Make up your own portmanteaus to describe things that are interesting to you.
- Hunt for portmanteaus in literature and movies and keep a log of the words their definitions and where you found them.



COOKING AVOCADO EGGS BENEDICT

Kitchen Prep

- Read the AVOCADO EGGS BENEDICT recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the Featured Culinary Skill – Cutting an Avocado
- Discuss kitchen safety. Specifically, knife skills safety (Visit Raddishkids.com/pages/safety).

Prepare AVOCADO EGGS BENEDICT

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to cut and poach.
- When the AVOCADO EGGS BENEDICT are ready, eat, taste and share! While your friends and family are eating, teach them what a portmanteau is and share with them your art or written/spoken portmanteau creation.



RESOURCES

- Books
 - Almost any of Dr. Seuss' books
 - Where the Wild Things Are by Maurice Sendak
 - The poetry of Shel Silverstein
 - Through the Looking Glass by Lewis Carol
- Websites
 - <https://www.vappingo.com/word-blog/86-great-examples-of-portmanteau/>
 - Jabberwocky <https://www.poets.org/poetsorg/poem/jabberwocky>
 - <https://www.deseretnews.com/top/3194/0/18-of-the-best-made-up-words-from-childrens-literature-and-Disney-movies.html>
 - https://en.wikipedia.org/wiki/List_of_portmanteaus
 - <https://www.theguardian.com/books/2014/jun/17/authors-invented-words-used-every-day-cojones-meme-nerd>
- Videos
 - Portmanteau (2:56) https://www.youtube.com/watch?v=045_Z5_HLEA
 - Portmanteau (Frankenwords) (6:13) <https://www.youtube.com/watch?v=t0CT9KNaNEc>



**Lesson #: GRANOLA CUP PARFAITS
& BIRD NEST BUILDING**

Activity Time: 45-90 minutes

LEARNING OUTCOMES

- Students will discover that different birds make different kinds of nests.
- Students will learn why birds make nests.
- Students will explore how a habitat controls the materials available to make a nest and the nest's placement.
- Students will understand that the materials birds make nests out of have a variety of purposes (strength, binder, liner, protection).
- Students will read books and watch videos about bird nest building.
- Younger students will create a bird nest out of found or purchased materials.
- Older students will research a bird of their choice and build that style of nest.
- Students will read and practice with Featured Culinary Skill Stirring Skills
- Students will make and share Granola Cup Parfaits with friends and family.



BIRD NEST BUILDING

Notes for the Teacher:

- Birds inspire us by their songs, their ability to fly; their seemingly infinite variety of shapes, sizes, and colors; their many remarkable adaptations; and their always fascinating and sometimes bizarre courtship rituals.
- By observing and learning about birds outside the classroom and in the local community, students can gain a greater understanding about the lives of birds everywhere and the entire animal kingdom in general.
- Birds are commonly found in all settings, in every community. The birds you can observe from the school yard, your backyard and in the community will vary with the weather and the seasons. But spring is the best time to observe nests and nest building.
- When students learn about birds, and the importance of materials in their environments, they will be more inclined to understand the importance of and want to take action in conservation and environmental protection.

Teacher Prep:

- Collect Materials:
 - Books about birds (for ideas see the list at the end of the lesson)
 - Access to the internet
 - For Older Students - *Bird and Nest Research Worksheet* (included)
 - For Nest Building:
 - Collect natural items on a bird watching walk (optional)
 - Twigs, feathers, grasses, mud, etc.
 - Purchase or collect from around the home:
 - Yarn, string, hair, twist ties, etc.
 - Toothpicks, skewers, popsicle sticks, etc.
 - Glue, paint, and brushes
 - Paper bowls
 - Floral moss or fake grass
- Read
 - Read though the information section of the lesson plan ahead of time to become familiar with purposes of nest building materials and nest types.
- Watch
 - A book read on video. Provides a good overview of nests.
 - Amazing Bird Nests
(9:49) <https://www.youtube.com/watch?v=rhCZ5f31vPU>



Lesson: Bird Nest Building

- Introduction:
 - Ask students:
 - Have you ever seen a bird's nest?
 - Where did you see it? (in a park, up in a tree)
 - Do you know what it was made of?
 - What kind of bird was it?
 - Why do you think birds build nests?
 - Are all nests the same? Why or why not?
 - Were there eggs or hatchlings in it?
 - Discuss:
 - What things in our lives are nest shaped? Where do you think people got the idea for building these things?
 - Examples:
 - Bowls
 - Hammocks
 - Boats
 - Tarts, pies, quiches
 - Tell the students that today not only are they going to get to make nest-shaped Granola Cup Parfaits but also learn about bird nests and make their own!



Background Information: What is a nest and how is it built?

- Share the information below with students to support what they already may know about nests and nest building:
 - Birds build different types of nests to best suit their needs. However, no matter what kind of nest a bird builds, it has one purpose: To protect their eggs and hatchlings.
 - Nests provide a safe place for eggs and young birds to develop. Bird nests are extremely diverse, although each species typically has a characteristic nest style.
 - Types of nests (and an example of a bird that builds each type):
 - Cup: A simple cup-shaped nest is the most familiar, common nest type. (Robin)
 - Scrape: A shallow depression on the ground without much nesting material. (Ostrich)
 - Burrow: Dug into the ground, and may be a shallow cave or could have a long tunnel leading to a nesting chamber. (Great Hornbill)
 - Mound: Built on the ground but is a relatively large accumulation of nesting material in a tall cone or bell-shaped structure. (Adelie penguin)
 - Cavity: Excavated cavities or natural cavities in trees, snags or cacti. (Parrot)
 - Platform: A relatively large, bulky structure often built of larger twigs or sticks. (Bald Eagle)
 - Pendant: Woven sacks that dangle from branches, giving birds in the nest great protection from predators. (Baltimore Oriole)
 - Watch a Weaver Bird Weave a nest in One Day (4:15) <https://www.youtube.com/watch?v=qbWM1QAVGzs>
 - Sphere: Almost completely enclosed and provides great protection and camouflage. (Marsh Wren)
 - No Nest: Eggs laid in the open or in another birds' nest
 - For more information visit <https://www.thespruce.com/types-of-bird-nests-386664>
 - Nests can be found almost anywhere – on the ground, in trees, in burrows, on the sides of cliffs, in and on man-made structures, like buildings and bridges. Usually the females build nests, but sometimes both parents the male alone will build it.
 - Nest building is a job with two parts that are done at the same time: collecting materials and putting them together into the finished nest. The



amount of time that birds spend collecting depends on how far away and plentiful or scarce the materials are.

- Nest materials have many functions:
 - Strength material: helps to hold the nest up during strong winds or adverse weather conditions (twigs)
 - Binders and adhesives: holds or glues the nest together (mud)
 - Liners: makes the nest cozy, soft, and warm (feathers)
 - Predator protection: keeps the eggs and hatchlings safe from predators: camouflage, secure structure, etc. (high in a tree)

BIRD NEST BUILDING

YOUNGER STUDENTS

- Instructions for Activity: Build a Birds Nest
 - Show students examples of nest building through one of the following:
 - videos of nest building
 - 10 Amazing Facts About Bird Nests (2:27) <https://www.youtube.com/watch?v=IneBlxZn6sg>
 - Amazing Bird Nests (9:49) <https://www.youtube.com/watch?v=rhCZ5f31vPU>
 - Watch a Weaver Bird Weave a nest in One Day (4:15) <https://www.youtube.com/watch?v=qbWM1QAVGzs>
 - books that explain nest building
 - a book read on video- Amazing Bird Nests (9:49) <https://www.youtube.com/watch?v=rhCZ5f31vPU>
 - go on a walk in a park or nature reserve and observe nests in their natural habitat.
 - Provide students with a variety of materials either collected or store bought and encourage them to build a nest
 - Remind them to focus on: strength, binding, lining, predator protection.
 - Ask the students if they can tell you what kind of nest (cup, mound etc.) they made and why they chose that kind.
 - Have students describe their nest. This can be written, dictated, videoed, or presented "live".
 - Display the students finished nests with their descriptions.

Extension:

- Color eggs or create play dough eggs to put in the nest.
- Create a different style of nest.
- Go on a nest finding adventure in your neighbourhood.
- Draw a picture of the kind of bird that you think would like to live in your nest.
- If you lived in a nest how would you design it? What materials would you use?



BIRD NEST BUILDING

OLDER STUDENTS

- Instructions for Activity: Research a bird and build their nest
 - Provide students with videos and/or books about birds and nest building (see the resources section below for ideas).
 - This is a book read on video- Amazing Bird Nests (9:49) <https://www.youtube.com/watch?v=rhCZ5f31vPU>
 - Ask students to choose a type of bird that interests them.
 - Tell students that they will research that bird and what kind of nest they build.
 - Provide students with the *Bird and Nest Research Worksheet* (included).
 - Collect or have students collect the necessary materials to build a model of their nest.
 - Have students build their nests.
 - Ask students to use the information they researched on the Bird and Nest Research Worksheet to create a presentation:
 - Oral presentation- live or recorded
 - A skit or commercial
 - A poster board
 - Cartoon strip or graphic novel
 - Written report

Extension:

- Create a Best Builder Award- Choose a bird and describe why it should win the award. Include details about the nest building materials and type of nest for the habitat.
- What does Shrek mean when he says that ogres are like onions?
 - Shrek Parfait clip (1:50) <https://www.youtube.com/watch?v=7d6ZsRM36RU>
 - Do you have layers? What are they?
- Research another kind of bird that builds the same or different kind of nest.
- Observe birds nesting: <https://nestwatch.org/learn/how-to-nestwatch/code-of-conduct/>
- Explore: If you lived in a nest, how would you design it? What materials would you use?



COOKING GRANOLA CUP PARFAITS

Kitchen Prep

- Read the GRANOLA CUP PARFAITS recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the Featured Culinary Skill – STIRRING SKILLS
- Discuss kitchen safety. Specifically, OVEN safety (Visit Raddishkids.com/pages/safety).

Prepare GRANOLA CUP PARFAITS

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to stir, press, and fill nests.
- When the GRANOLA CUP PARFAITS are ready, eat, taste and share!
- While your friends and family are eating, share your nests and teach them about nesting materials and nest types through your presentation.



RESOURCES

- Books
 - Birds, Nests & Eggs by Mel Boring
 - Amazing Bird Nests by Ron Fridell
 - Backyard Birds (Field Guides for Young Naturalists) by Karen Stray Nolting and Jonathan Latimer
 - Fine Feathered Friends: All About Birds by Tish Rabe
 - The Boy Who Drew Birds: A Story of John James Audubon by Jacqueline Davies
 - Everything You Need to Know About Birds by DK
 - "Strange Nests" by Ann Shepard Stevens
 - That Chickadee Feeling by Frank Glew
(6:04) https://www.youtube.com/results?search_query=that+chickadee+feeling+book
 - The Best Nest by PD. Eastman
(6:25) https://www.youtube.com/watch?v=d0z_IAdqChY

- Websites
 - <https://nestwatch.org/learn/general-bird-nest-info/nesting-cycle/>
 - <https://nestwatch.org/learn/how-to-nestwatch/code-of-conduct/>
 - <https://www.thespruce.com/types-of-bird-nests-386664>
 - Build an Oriole Nest <http://www.learner.org/jnorth/tm/oriole/BuildNest.html>

- Videos
 - 10 Amazing Facts About Birds Nests
(2:27) <https://www.youtube.com/watch?v=lneBlxZn6sg>
 - Amazing Birds Nests (9:49) <https://www.youtube.com/watch?v=rhCZ5f31vPU>
 - Watch a Weaver Bird Weave a nest in One Day
(4:15) <https://www.youtube.com/watch?v=qbWM1QAVGzs>
 - That Chickadee Feeling by Frank Glew
(6:04) https://www.youtube.com/results?search_query=that+chickadee+feeling+book
 - The Best Nest by PD. Eastman
(6:25) https://www.youtube.com/watch?v=d0z_IAdqChY
 - Shrek Parfait clip (1:50) <https://www.youtube.com/watch?v=7d6ZsRM36RU>



**Lesson #: LEMON POPPY SEED SCONES
& SEEDS AND HOW THEY GROW**

Activity Time: 90 minutes

LEARNING OUTCOMES

- Students will examine many different kinds of seeds.
- Students will learn that seeds have different parts and will learn the terms *embryo*, *seed coat*, and *cotyledon*.
- Students will learn and observe the process of *germination*.
- Students will learn the steps and terminology in the Scientific Method: *question*, *hypothesis*, *materials*, *procedure/experiment*, *observations*, *analysis*, and *conclusion*.
- Students will conduct an experiment using the Scientific Method.
- Student will observe and record their experiment over 7 days.
- Students will dissect and label their grown seed.
- Students will read and practice with Featured Culinary Skill - How to Zest.
- Students will make and share Lemon Poppy Seed Scones with friends and family.



SEEDS AND HOW THEY GROW

Notes for the Teacher:

- Spring is a great time to go outside and explore with your students! You can build on your student's natural curiosity about nature by providing them with the opportunity to examine how seeds contribute to the life cycle of a plant up close.
- A great way to hook students into this lesson is to talk about their favorite fruit. How do they think it grows? What part of the plant has the important job of carrying on the information and materials to grow more of it for them to eat?
- Fun Food Fact: Strawberries are the only fruit to carry their seeds on the outside! To learn more visit <http://www.foodrepublic.com/2013/05/20/14-things-you-didnt-know-about-strawberries/>

Teacher Prep:

- Collect Materials:
 - Introduction- A variety of seeds
 - Poppy
 - Pumpkin
 - Sunflower
 - Chickpeas
 - Popcorn
 - Avocado pit
 - Black beans etc.
 - Seed Experiment for each student:
 - Sandwich size or larger zip top bag
 - 3 lima beans (dried)
 - paper towel
 - water
 - tape
 - pencil
 - The Scientific Method (included)
 - Seed experiment, observation, analysis and conclusion worksheet (included)
- Read
 - Read through the seed experiment and observation sheet (included) so that you understand it completely and can support the students.



- This site provides good basic information to prepare you for the lesson
<http://seeds.sciencenetlinks.com/seeds/>
- Watch
 - Lima Bean Time Lapse (1:58)
<https://www.youtube.com/watch?v=iZMjBO6A7AE&feature=youtu.be>



Lesson: What is a seed?

- Introduction:
 - Collect a variety of seeds (see suggestions above)
 - Ask students:
 - Have you seen a seed before?
 - What kind of seed was it?
 - Where did it come from?
 - What did it look like? (size, color, texture, etc.)
 - What do you think that seeds are for?
 - Show the students the variety of seeds that you brought with you today.
 - Tell the students to study these items.
 - Ask them if they think they are seeds or not
 - What do you think makes something a seed?
 - What do these items have in common/different?
 - Read the *Parts of the Lemon* section of the Lemon Poppy Seed Scones recipe guide.
 - Share that today you are going to learn more about what makes a seed a seed, what its job is, and conduct a scientific experiment!



Background Information: Parts of a Seed and Germination

- Share with the students that all the items they examined are seeds!
 - Seeds come in many different sizes and shapes and are surrounded by all different kinds of fruit.
 - From the tiny poppy seed to the giant avocado seed they all have a few things in common:
 - All seeds serve the same purpose, to germinate and grow a new plant in order to perpetuate (maintain) the plant species.
 - Every seed contains a little plant called an embryo.
 - All seeds contain food that helps the little plant grow.
- Teach the students the following terms
 - *Germination*: the process by which a dormant (sleeping) seed begins to sprout and grow into a seedling (a new baby plant)
 - *Embryo*: this is the baby plant inside of the seed and includes the beginning leaves, the stem, and root
 - *Seed Coat*: this is the outside of the seed, which protects the embryo
 - *Cotyledon*: this is the food inside the seed that feeds the embryo when it is first starting to grow
- Find diagrams of seeds and their parts by searching “seed+diagram+function” in Google Images
 - For a Diagram of a seed worksheet with fill in the blanks visit <https://www.education.com/worksheet/article/parts-of-a-seed-2/>



Seed Experiment Instructions

- Ask students:
 - Where do seeds grow?
 - See if you can lead students through this curious question. Underground. If they grow underground, where it is dark, do they need sunlight?
- Tell the students that today they are going to conduct an experiment to test whether a seed needs sunlight to grow.
- Teach or review the steps in the *Scientific Method* (included)
- Provide students with the *Seed Experiment and Observation Sheet*.
 - Read through the Seed Experiment and Observation Sheet with the students and make sure they understand all components.
- Ask students to decide on their hypothesis.
 - If all students decide to do dark or light make sure to test one in the alternate environment for comparison.
- Gather materials together and experiment!
- Dedicate a few minutes each day for students to observe and comment on their experiment.
 - Use seed terminology: germination, embryo, cotyledon (food), and seed coat.
 - Use scientific method terminology.
- Check to ensure that the paper towel stays damp, but not soaked, every day.
- Have students dissect, observe, draw, and label the parts of the seed visible on the last day.
- Have students share their results, conclusions and future questions.
- Optional:
 - Plant the seed in soil when you are done
 - Watch Lima Bean time lapse
(1:58)<https://www.youtube.com/watch?v=iZMjBO6A7AE&feature=youtu.be>

Extension:

- How to Grow an Avocado Tree from a seed (3:39)
<https://www.youtube.com/watch?v=YDmdQWP1DPo>
- How do seeds get spread around (dispersion) in nature so that they can grow?
<http://www.discoveryeducation.com/teachers/free-lesson-plans/scattering-seeds.cfm>
- Create your own time lapse of another kind of seed growing.



COOKING LEMON POPPY SEED SCONES

Kitchen Prep

- Read the LEMON POPPY SEED SCONES recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the Featured Culinary Skill - How to Zest
- Discuss kitchen safety. Specifically, handwashing safety (Visit Raddishkids.com/pages/safety).

Prepare LEMON POPPY SEED SCONES

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Make sure to wash hands after cracking eggs.
- Give each child a turn to whisk, zest, knead.
- When the LEMON POPPY SEED SCONES are ready, eat, taste and share!
- While your friends and family are eating, share your experiment with them. Describe the steps of the Scientific Method that you went through and share your results and ideas.



RESOURCES

- Books
 - The Tiny Seed by Eric Carl
 - Planting a Rainbow by Lois Ehlert
 - The Dandelion Seed by Joseph Anthony
 - From Seed to Plant by Gail Gibbons
 - A Fruit is a Suitcase for Seeds by Jean Richards
 - Exploring Seeds by Kristin Sterling
 - Seeds (Science Explorer) by Susan H. Gray
 - The Magic School Bus Plants Seeds: A Book About How Living Things Grow by Joanna Cole

- Websites
 - <http://www.discoveryeducation.com/teachers/free-lesson-plans/scattering-seeds.cfm>
 - Diagram of a seed- worksheet fill in the blanks
<https://www.education.com/worksheet/article/parts-of-a-seed-2/>
 - <https://www.weareteachers.com/learning-about-seeds-in-third-grade-with-free-printables/>
 - <https://www.myips.org/cms/lib8/IN01906626/Centricity/Domain/8123/2nd%20grade%20Unit%20Plant%20-%20The%20Life%20Cycle%20Of%20A%20Plant.pdf>
 - <https://www.scholastic.com/teachers/lesson-plans/teaching-content/seed-sensation-exploring-and-sorting-seeds/>
 - <https://www.nps.gov/timu/learn/education/upload/how-plants-grow-unit-plan.pdf>
 - <http://seeds.sciencenetlinks.com/seeds/>
 - <http://www.foodrepublic.com/2013/05/20/14-things-you-didnt-know-about-strawberries/>

- Videos
 - How to Grow an Avocado Tree from a seed (3:39)
<https://www.youtube.com/watch?v=YDmdQWP1DPo>
 - Lima Bean time lapse (1:58)
<https://www.youtube.com/watch?v=iZMjBO6A7AE&feature=youtu.be>

Bird and Nest Research Worksheet

Bird type: _____

How many eggs do they usually lay? _____

How big are the eggs? _____

Where in the world are they found? _____

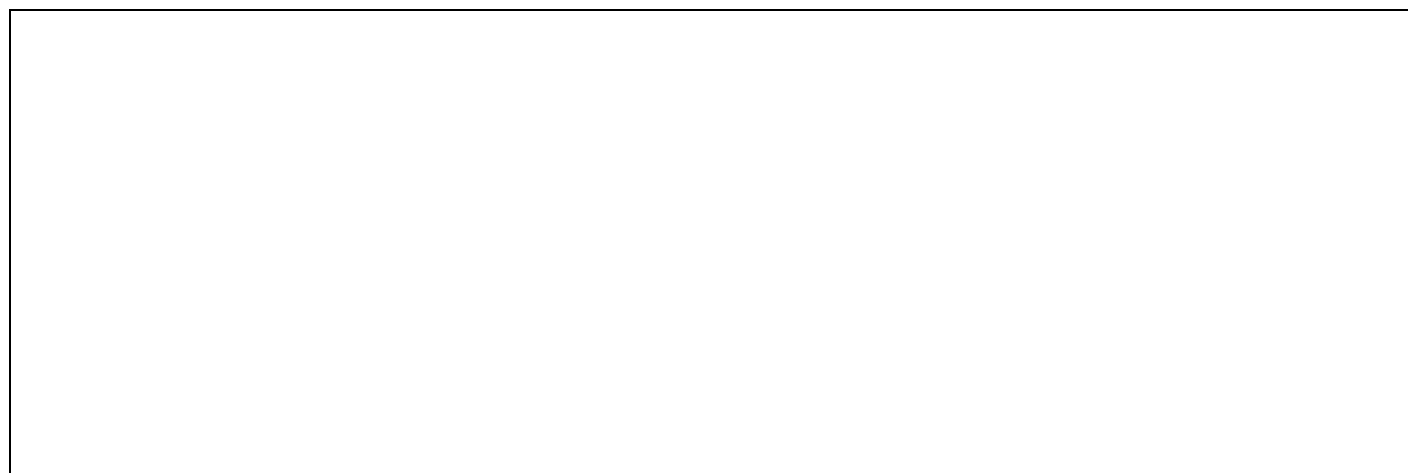
What kind of habitat? (mountains, marshland, woods, etc.) _____

List the materials found in that habitat. Remember to think of the different types on materials needed for a nest (**strength, binding, lining, predator protection**)

What type of nest does your bird build? (cup, mound) _____

Why do you think they build this kind nest?

Draw a picture of the nest you are going to design for your bird and brainstorm what materials you can use to build it with.



The Scientific Method

QUESTION

- What do you want to find out?
- What would happen if...?

HYPOTHESIS

- What is your prediction?
- A hypothesis is an idea you can test.

MATERIALS

- What do you need to be able to conduct your experiment?

PROCEDURE/EXPERIMENT

- How will you find out if your prediction/hypothesis is correct?
- This is the action of testing your ideas.

OBSERVATIONS/DATA

- The information you gather while doing your experiment.
- These are the facts and proof.

ANALYSIS

- Add your thinking and reasoning to the observations and data to figure out if your prediction/hypothesis was correct.

CONCLUSION

- State/tell whether your hypothesis was true.
- Explain what you learned.
- Do you now have a new question?

Seed Experiment

Question Does a seed need sunlight to grow?

Hypothesis I think that the seed will grow better in the *(circle one)*

dark

light

Materials

- zip top bag
- 3 lima beans (dried)
- paper towel
- water
- tape

Procedure/Experiment

1. Decide hypothesis and circle answer.
2. Collect materials.
3. Dampen a paper towel (it should not be soaking wet, just damp)
4. Fold paper towel in half and place flat inside the zip top bag.
5. Tuck three lima beans spaced out in between the layers of paper towel. Seal the bag, except for a small opening.
6. Use tape to affix the bag to either a dark place (like inside a closet) or a light place (on a window).
7. Observe over the next week.
8. Analyze data.
9. Make conclusion.

Observation

Day #1

Draw and label what you see.

Observation

Day #2

Draw and label what you see.

Observation

Day #3

Draw and label what you see.

Observation

Day #4

Draw and label what you see.

Observation

Day #5

Draw and label what you see.

Observation

Day #6

Draw and label what you see.

Observation

Day #7

Draw and label what you see.

Analysis

- I looked at all my observations.
- I counted the seeds that grew.
- I thought about why these were the results.

Notes

Conclusion

Was my hypothesis true?

I thought the seed would grow better in the _____.

It did or did not (*circle one*) grow better.

I think this happened because _____

I have more questions/ideas now.
