

Seeds, Seed Dispersal, Young Plants and More

Preview is a compressed file

• Cotyledon: A flowering plant with an embryo at the base of the stem (e.g., daisy, oak).

- Dicotyledonous plants have two divisions of flowering plants, and typically have broad, stalked leaves with netlike veins (e.g., daisies, hawthorns, oaks).



- Which is pollinated by wind?

A  Insects

C 

D 

...which uses insects? Why?

A 

B 

- This is the stem of a seedling or embryo located between the cotyledons and the first true leaves.

Epicotyl

14



- Activity! Video and Reading
- George Washington Carver,
– http://www.youtube.com/watch_popup?v=sdz8XTNltdc



Which is a dicotyledon? Which is a monocotyledon?

Dicotyledon 18 

Monocotyledon 

Hypocotyl
Epicotyl

Radicle Cotyledon True

Which two are switched?



- All of the following are factors that break seed dormancy except...
– A.) Gravitropism
– B.) Mechanical Abrasion
– C.) Digestion processes of animals
– D.) Temperatures – Warm and Cold
– E.) Water

8 Lessons

Interactive Slideshows

Seed Coat: Protects seed from drying out, aids in seed dispersal, opens when conditions are right.

seed coat embryo



- Wind Dispersal: When wind disperses either pollen or seeds.
- Most common dispersal mechanism.



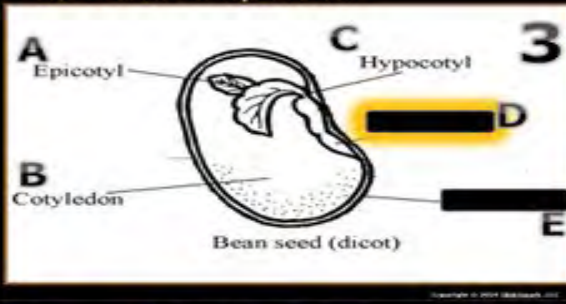
- Veins in leaf are parallel.



- Which cone is the male cone, and the female cone?



- Name all 5. One point each



Gravitropism: Response of a plant in relation to gravity. Roots go down, shoots go up.



Positive Gravitropism



Negative Gravitropism

- Seed: (Hard) A mature fertilized plant ovule consisting of an embryo, its food source, and having a protective coat.



Animal



Activities, Quizzes, Games and more all built-in

- Germination: The process whereby growth emerges from a period of dormancy.



- Which is a cotyledon?



- Plants use wind to pollinate
- Pollination: The transferring sex cells) from one plant to



- Wind can pollinate, and then animals can disperse seeds.



- Water Dispersal: The seeds or fruits are dropped from the plant into rivers, lakes or seas.
- The seeds float then wash up and germinate.



- Name this part of a plant between the nodes.



- Dormant seeds can survive

- Freezing temperatures.
- Droughts.

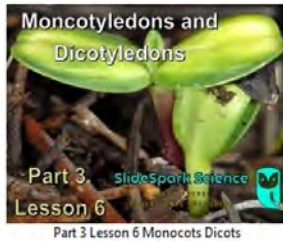
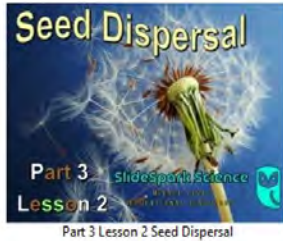
Desert Dry Years



- Seeds sometimes stick to an animal and hitch a ride to fall off later and in a new location.



Botany Unit Part 3 : 8 Lessons of 50 Minutes and 19 Page Work Bundle, Svalbard Seed Depository Case Study, Breakdown of the Definition of a Seed, Parts of a Seed, Seed Dissection Activity, Seed Coat, Seed Dormancy, Factors that Break Seed Dormancy, Parts of a Seed, Factors that break Seed Dormancy, Seed Dispersal, Wind, Male and Female Cones of Gymnosperm, Seed Dispersal Project where student design a seed to be dispersed by wind, Water Dispersal, Animal Dispersal, Tension Dispersal, Visual Quiz of Seed Dispersal Mechanism, Germination, Germination Observation Activity, Peanut Allergies, Parts of Young Plants, Cotyledon, Radicle, Gravitropism, Hypocotyl, Epicotyl, Foliage Leaves, Stems, Nodes, Internodes, Petioles, Visual Quiz Name that part of a Young Plant, Monocotyledons, Dicotyledons, Differences between the two, Visual Quiz of Mono or Dicot, Case Study on George Washington Carver, Box Game Review, Crossword Puzzle, End of Unit Assessment



Botany Unit Part 3

SlideSpark Science



MIDDLE-LEVEL EDUCATIONAL RESOURCES

Interactive slideshows provide the roadmap for an amazing learning experience for students in grades 5-9. A Detailed set of work bundles chronologically follow the digital learning, providing a clear and intuitive roadmap to understanding. As the teacher or student advances through a slideshow, exciting hands-on activities, fantastic visuals, fill-in notes, review opportunities, video links, assessments, and much more are strategically placed throughout. Interactive learning unfolds step by step and supported by the work bundle to reach all types of learners. Everything you need to run to an amazing learning experience is provided in this one-of-a-kind science curriculum.

Each unit in the curriculum is designed to help teachers deliver the best possible learning experience for their students. Our interactive science slideshows are filled with questions and answers, important fill-in notes, hands-on activities, projects, games, built-in quizzes, and end of the unit assessment pieces. Students follow along with a work bundle that documents the entire learning experience for a fantastic review and assessment piece.

- Germination: The process whereby growth emerges from a period of dormancy.



- Which flower uses **wind** to pollinate, and which uses **insects**? Why?



- Which is pollinated by wind?



- Gravitropism: Response of a plant in relation to gravity. Roots go down, shoots go up.



- 



Normal

Please tell me about this place as described in the slideshow. What? And where is it? And what is its purpose?



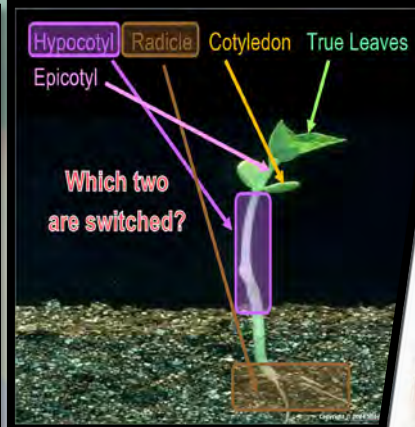
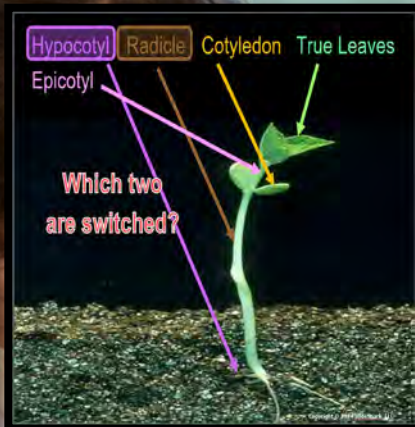
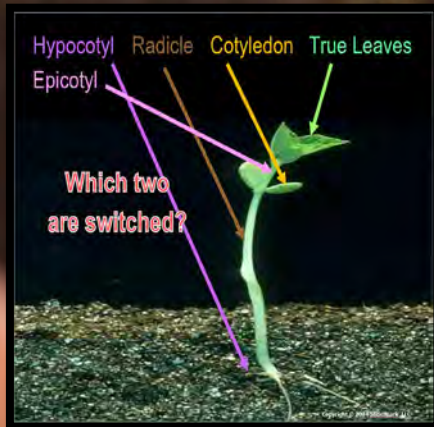
Plant

Seed: (Hard) A mature fertilized plant _____ consisting of gn _____, its
source, and having a protective _____

Seed Coat: _____ seed from drying out, aids in seed dispersal, open's when conditions are right.

Red Slide Notes: Help students record important information in a fun and easy-to-understand way. Designed red-colored slides contain a few pieces of crucial information that students must record into their work bundle to complete the notes. Students will use these important notes throughout the work bundle.

The set-up of the slideshows are designed to make learning fun and interactive for students. With a mix of questions and answers, teachers can use these slides to get their students thinking and actively participating in their education. Plus, the answers are always revealed on the next slide, providing students with immediate feedback and helping teachers assess their understanding.



Next Slide

slideshow supports
Work Bundle



Lesson Planning

Daily lessons space exciting hands-on activities, red slide notes, video and academic links, projects, simulations, readings, built-in quizzes, and review opportunities throughout the slideshows. A typical day may have many different learning styles being targeted. Daily lesson planning becomes advancing through the slideshow roadmap the night before. Each lesson is roughly 50 minutes, but sometimes things can speed up or slow down. The best strategy is just to go at your classes own pace. The work bundle chronologically follows the interactive slideshow and you can always spend extra time assessing the quality of the writing within. If you don't quite finish a lesson, you can always pick it up the next day where you left off. The only real trick in timing is not starting a larger activity if you don't have the available time to complete. The slideshows have been designed to be a low stress, go at your classes own pace experience. Most activities are designed to be cost effective, using general materials that can be gathered from your local stores.

Part 2 of 6



Lessons chronologically follow a single work bundle

Follow Along Work Bundle

Each science unit includes a single printable work bundle that stays with students from start to finish. Just print and distribute on day one—no daily handouts needed. The bundle follows the unit chronologically and includes everything: fill-in notes, diagrams, quizzes, lab activities, with follow up questions and much more. It's used daily, supports the end-of-unit quiz game, and is handed in for an additional assessment. Answer keys, some writable .pdf versions, and digital versions are also included for flexible classroom use..

6

Radicle: Lower embryo and _____
 • Radicle emerges from seed coat and goes _____ into the soil for support, the plant then goes upward.
 • Gravitropism: Response of a plant in relation to _____. Roots go down, shoots go up.

Part 3 Lesson 5 Young Plants Continue

Hypocotyl: Part of the plant between the _____ and _____
 Epicotyl: The stem of a seedling or embryo located between the _____ and the first _____

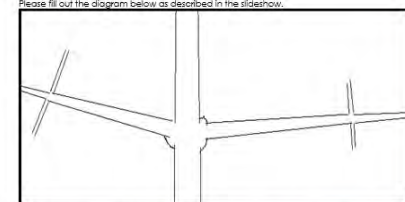
Please label and provide a brief description of the following terms associated with a young plant. Check off each term after you have described and labeled them. (Make sure your arrow accurately points to that plant feature.)

True Leaves Cotyledons Epicotyl Hypocotyl Radicle Seed Coat



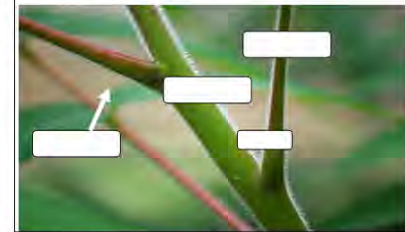
7

Please fill out the diagram below as described in the slideshow.



Please accurately label the parts of a stem on the picture below. Please check off each box after you have used the term.

Node Internode Petiole Stem



Activity! Quiz Wiz 1-10. Name the part of the seed / plant or other information.

8

1)	2)	3)
4)	5)	6)
7)	8)	9)
10)	*11)	

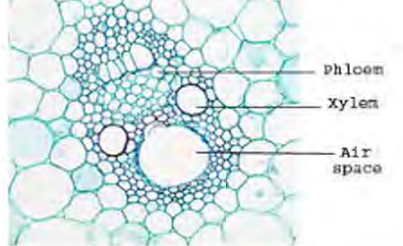
Part 3 Lesson 6 Monocotyledons and Dicotyledons

Monocotyledon: A flowering plant with an embryo that bears _____ cotyledon (seed leaf).

Monocotyledons constitute the _____ of the two great divisions of flowering plants, and typically have elongated stalkless leaves with parallel veins (e.g. grasses, lilies, palms).

Monocotyledons:
 Seedling has _____ cotyledon
 Veins in leaf are _____
 Flower petals are in _____
 Never _____
 Vascular bundles are _____

Use the space below to make Monocot Man of Monocot Woman.

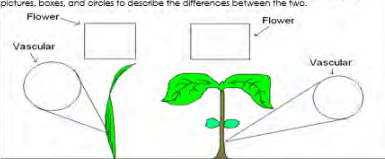


9

Dicotyledon: A flowering plant with an embryo that bears _____ cotyledons (seed leaves). Dicotyledons constitute the _____ of the two great divisions of flowering plants, and typically have broad, stalked leaves with netlike veins (e.g., daisies, hawthorns, oaks).

Dicotyledons:
 Veins on leaf are _____
 Flower parts are groups of _____
 Secondary growth can be _____
 Vascular bundles are in a _____

Which plant below is a dicotyledon, and which is a monocotyledon? Explain using the pictures, boxes, and circles to describe the differences between the two.



Please draw a seed, root, stem, leaf, and flower of a monocot, and then doof that would show that you understand the differences between the two.

	Seed	Root	Stem	Leaf	Flower
Monocot					
Diroot					

With All's Sweet Key

Part 3 Young Plants

Bean seed (violet)

Epicotyl
Hypocotyl
Radicle
Cotyledon
Seed coat

Common garden bean

Hypocotyl
Cotyledon
Epicotyl
Radicle
Seed coat

Common garden bean

Hypocotyl
Cotyledon
Epicotyl
Radicle
Seed coat

Review Games / Assessments

This unit concludes with a review quiz. Answers are provided in slideshow form so students can self assess. A blank template sheet is provided in the work bundle. Students can benefit from working together in small table groups with quiet communication. You can decide if you want to allow the use of work bundles or not. These are a nice review opportunity and get the students looking through their work bundles for the answers.



Part 3 Review Game Lesson 8

Name: _____ Date: Today _____ Score: _____ / 100

1-10 = 10 pts. * = Bonus = 1 pt.
(Secretly write out in correct space + 1 pt)
Final Question = 5 pt wager

NEED FOR SEED	WHEEL AND AWAY	YOUNG ONE	ONE FOR ME, TWO FOR YOU	GREEN MACHINE
1) _____	6) _____	11) _____	16) _____	*21) _____
2) _____	7) _____	12) _____	17) _____	*22) _____
3) _____	8) _____	13) _____	18) _____	*23) _____
4) _____	9) _____	14) _____	19) _____	*24) _____
5) _____	10) _____	15) _____	20) _____	*25) _____

Final Question Wager: _____ pt. Answer: _____

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Part 3 Review Game Lesson 8

Name: _____ Date: Today _____ Score: _____ / 100

1-10 = 10 pts. * = Bonus = 1 pt.
(Secretly write out in correct space + 1 pt)
Final Question = 5 pt wager

NEED FOR SEED	WHEEL AND AWAY	YOUNG ONE	ONE FOR ME, TWO FOR YOU	GREEN MACHINE
1) The Swabland Clinical seed vault AKA "Doomsday Vault"	6) A= Female B= Male	11) A= Eucalyptus	16) A= Monocotyledon B= Dicotyledon	*21) Kestrel Eggs
2) Interbreed	7) Water	12) Gravitation	17) Venus are branched (dicotyledon)	*22) Lucky
3) A= Epicotyl B= Cotyledon C= Hypocotyl D= Radicle E= Bean seed	8) Animals	13) Hypocotyl	18) A= Dicotyledon B= Monocotyledon	*23) The Wizard of Oz
4) A= Gravitation	9) Germination	14) Epicotyl	19) A (petals in 5's)	*24) Neverland
5) _____	10) Fire	15) Intermode	20) George Washington Carver	*25) Temple Run

Final Question Wager: _____ pt. Answer: _____

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Seeds and Young Plants Quiz Game

• What is this and what's stored here?

1 The Svalbard Global Seed Vault

Aka "Doomsday Vault"

• Name all 5. One point each



- Seed: A mature unfertilized plant ovule consisting of an embryo and its food source and having a protective coat.



- All of the following are factors that break seed dormancy except...

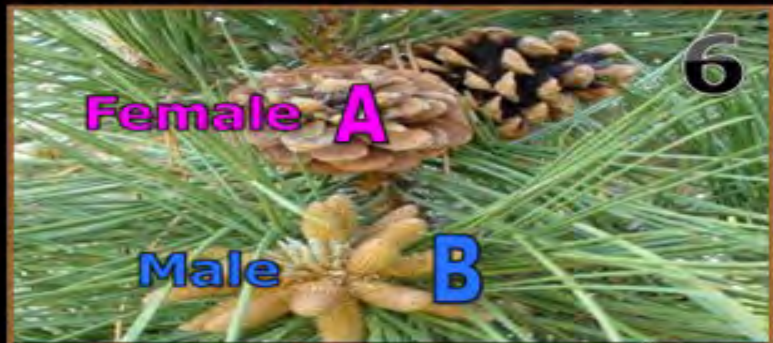
- A.) Gravitropism
- B.) Mechanical Abrasion
- C.) Digestion processes of animals
- D.) Temperatures - Warm and Cold + Fire
- E.) Water

pollinated by wind?



20 Questions

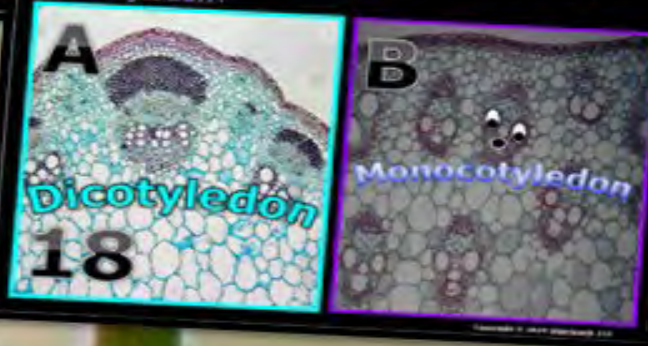
- Which cone is the male cone, and which cone is the female cone?



- What mechanism disperses these seeds?



- Which is a monocotyledon and which is a dicotyledon?



- This process whereby growth emerges from dormancy.



- What mechanism disperses these seeds?



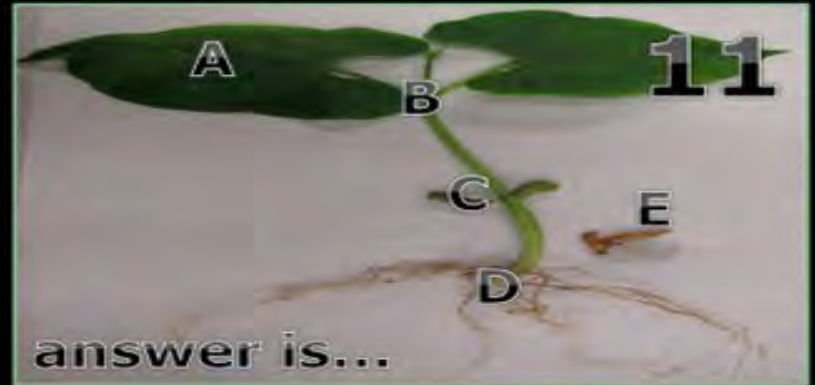
w/ Answer Version

- Seed dormancy was broken by...



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- Which is a cotyledon?



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- This is the stem of a seedling or embryo located between the cotyledons and the first true leaves.

Epicotyl

14

answer is...

- Name this process?

Gravitropism

12

Radicle goes downward and the answer is...

- Name this part of a plant between the nodes.



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- This is the part of the plant between the radicle and cotyledons.



Copyright © 2024 StockSnap LLC

- Name this part of a plant between the nodes.



- Which is a monocotyledon?



- Why is this not a monocotyledon?

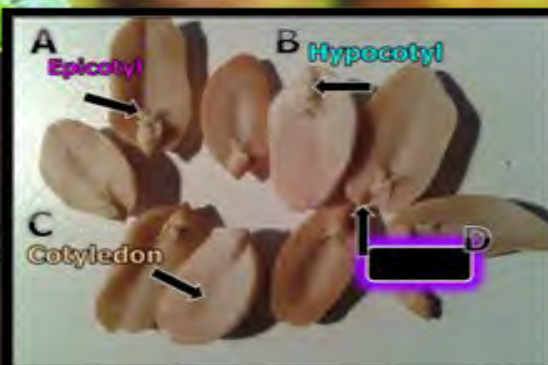


- Who...



answer is...

- Which is a monocotyledon and which is a dicotyledon?



- Which is a monocotyledon and which is a dicotyledon?



Activities / Labs

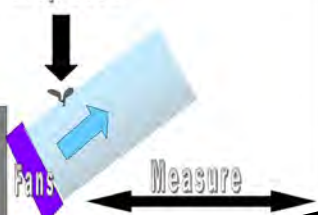
Our science activities are designed to help students explore and understand complex scientific concepts in an engaging and interactive way. Each science unit includes several hands-on activities that encourage students to collect data and think critically about the world around them. Our easy-to-follow slideshow provides detailed visuals, simple materials, and clear directions, making it easy for both students and teachers to navigate the activities.

Seed Dispersal Activity

• Activity – Wind Dispersal

- A.) In this activity – You are required to design and then build a seed dispersal mechanism that uses the wind.
- B.) The seed you will be given will be half of a pea seed.
- C.) Your mechanism will be dropped in front of a fan that blows upward at an angle.
- D.) The distance it travels will then be recorded.
- E.) Behavior / Participation and...

Drop Seed



• Parachutes.



• Gliders – Nature's perfect design.



Please name the seed dispersal mechanism below.



Built-in Assessment

Each unit contains several built-in assessment questions that students answer in their work bundle. With the question revealed before the answer, the teacher can easily call on individual students or table groups to respond. These provide an effective and efficient way for teachers to assess student learning.

- Quiz Wiz! Mono or Dicotyledon. (1-20)
- Make the following symbols.

Monocotyledon Dicotyledon

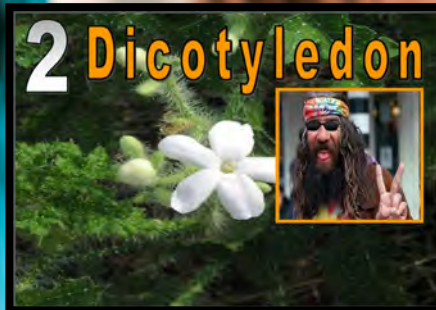


2



2

Dicotyledon

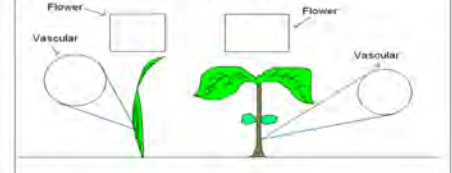


Dicotyledon: A flowering plant with an embryo that bears _____ cotyledons (seed leaves). Dicotyledons constitute the _____ of the two great divisions of flowering plants, and typically have broad, stalked leaves with reticulate veins (e.g., oaks, hawthorns, oaks).

Dicotyledons

Veins on leaf are _____
Flower parts are groups of _____
Secondary growth can be _____
Vascular bundles are in a _____

Which plant below is a dicotyledon, and which is a monocotyledon? Explain using the pictures, boxes, and circles to describe the differences between the two.



Please draw a seed, root, stem, leaf, and flower of a monocot, and then do that for a dicot that you understand the differences between the two.

	Seed	Root	Stem	Leaf	Flower
Monocot					
Dicot					

Work Bundle

Built-in Video Links

Our science education program is designed with the modern, multimedia learner in mind, and our video links are a perfect complement to our educational materials. These short clips are embedded into the slideshow at just the right places for a fantastic review. Whether you're studying biology, chemistry or physics, our video links are an excellent way to reinforce your learning.



Games and Review

Games are a fantastic way for students to learn scientific concepts while having fun. We incorporate a variety of games into our curriculum, including interactive quizzes and puzzles that challenge students to think critically about the material. Our Hidden Box Games are a particularly popular feature, which conclude each unit by revealing a picture related to the topic. Students try to guess what the picture might be, making learning an engaging experience.

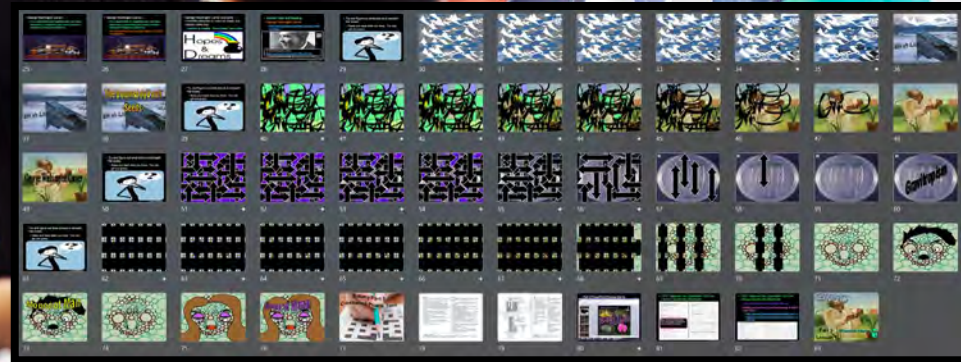
Across

1. The small stalk attaching the leaf blade to the stem.
4. Response of a plant in relation to gravity. Roots go down, shoots go up.
7. Portion of a plant stem between nodes.
8. Monocotyledons constitute the smaller of the two great divisions of flowering plants, and typically have elongated stalkless leaves, with _____ veins (e.g. grasses, lilies, palms).
9. A flowering plant with an embryo that bears two cotyledons (seed leaves).
10. Seed _____ A period when the seed doesn't grow.
13. Place on stem where buds form.
14. Part of the plant between the radicle and cotyledons.
15. Seed _____ is the movement, spread or transport of seeds away from the parent plant.
18. Lower embryo and root.

Down

2. The stem of a seedling or embryo located between the cotyledons and the first true leaves.
3. _____ Dispersal: The seeds or fruits are dropped from the plant into rivers, lakes or seas.
4. The process whereby growth emerges from a period of dormancy.
5. The transferring of pollen (plants sex cells) from one plant to another.
6. George Washington _____ was an American agricultural scientist and inventor who promoted alternative crops to cotton and methods to prevent soil depletion. He was the most prominent black scientist of the early 20th century.
11. A flowering plant with an embryo that bears a single cotyledon (seed leaf).
12. The First leaves (Full of energy). Not true leaves.
16. A mature fertilized plant ovule consisting of an embryo, its food source, and having a protective coat.
17. Main trunk of a plant.
19. Seed _____ Protects seed from drying out, aids in seed dispersal, opens when conditions are right.

Possible Answers
CARPUS, COAT, COTYLEDON, DORMANCY, EPICOTYL, GERMINATION, QUANTIFICATION, HYPOCOTYL, MONOCOTYLEDON, NODES, PETIOLE, POLLINATION, RADICLE, SEED, STEM, WATER DISPERSAL, HYPERNOISE, PALLELS



Dormant seeds can survive

- Freezing temperatures.
- Droughts.
- Some can survive through fire.



Dormant seeds can survive

- Freezing temperatures.
- Droughts.
- Some can survive through fire.

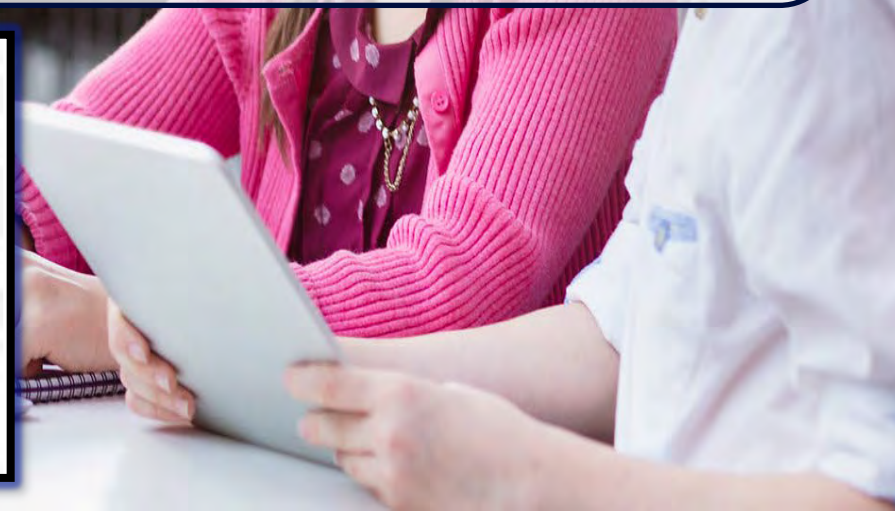


The Owl - Each Part of the slideshow has a small clipart Owl hiding somewhere in a slide. The owl is incredibly small and blended into just the right slide. If a student spots the “Owl” they can raise their hand high into the air. When you call upon the student they can say “Owl” and be the student who spotted the Owl. Each PowerPoint Review game also has an owl hiding in it worth one point. Remind the students that they secretly write the word “owl” rather than yell it out during the review games. The Owl search is not included in every lesson. A slide at the beginning of the lesson will alert the students that today is an “Owl” day. Everything arrives editable so delete if you wish. You will find that some students will become the expert owl hunters in the group.

Google Classroom Compatible

Our digital learning programs are designed for students to learn science in a flexible and engaging environment. Our Google Classroom-compatible units provide a seamless learning experience whether your students are in the classroom or learning from home. Our step-by-step slideshows and student work bundles ensure that students can complete their work independently. The PowerPoint Slideshows and step-by-step work bundles can easily be loaded to your Google Drive and posted in your Google Classroom. These are great for daily lessons, students who need additional time, and for a student who was absent and looking to catch up in their work bundle.

	<u>Part 3 Lesson 8 Review Game</u> Google Slides		<u>Part 3 Lesson 4 Young Plants</u> Google Slides
	<u>Part 3 Lesson 5 Young Plant...</u> Google Slides		<u>Part 3 Lesson 1 Seeds</u> Google Slides
	<u>Part 3 Lesson 3 Seed Disper...</u> Google Slides		<u>Part 3 Lesson 2 Seed Disper...</u> Google Slides
	<u>Part 3 Lesson 6 Monocots D...</u> Google Slides		<u>Part 3 Lesson 7 George Was...</u> Google Slides

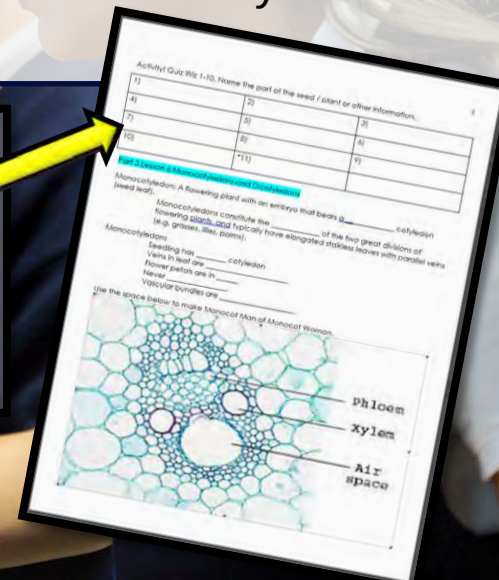


Built-in Questions and Assessments

Many slides will have relevant terms covered with a box. When advancing through the slideshow an outline around the box will glow with a bright color. The next slide will make the box disappear. These slides allow the teacher to call upon students or table groups / check for understanding before advancing. The team at SlideSpark has found that using this technique helps to keep the students focused. Constantly recalling and reviewing information learned is necessary when moving through a large unit. The slideshows don't just give everything away for free. Students should be able to demonstrate knowledge before moving on. Some slides have full questions instead of just covered terms. In these slides, the teacher should encourage small group work. The teacher can then call upon one or two groups to share before advancing the slide. The next slide will always reveal the correct answer.

• Activity! Quiz Wiz 1-10. Name the part of the seed / plant or other information.

QUIZ WIZ



Botany Unit

Botany Unit

Plant Topics / Botany Unit

5 Parts, 50 Lessons, (5th-7th Grade -Medium Difficulty) Part 1 Introduces Plant Project and Plant Evolution, 7 Lesson 18 Page Work Bundle, Part 2 is about Non-vascular Plants and is 6 Lessons and 12 Page Work Bundle, Part 3 is Seeds and Young Plants, and has 8 Lessons and 19 Page Work Bundle. Part 4 has 11 Lessons and 20 Page Bundle, Part 5 is Leaves and Plant Life Cycles and has 10 Lessons and 18 Page Work Bundle.

-Areas of Focus in The Plant Unit: Cool Facts about Plants, Plant Evolution, Importance of Algae, Lichens, The Three Types of Lichens, Non-Vascular Plants, Bryophytes, Seedless Vascular Plants (Ferns), Seeds, Seed Dormancy, Factors that Break Seed Dormancy, Germination, Parts of a Young Plant, Monocots and Dicots, Roots and Water, Types of Roots, Water Uptake and Photosynthesis, Plant Hormones, Types of Plant Tissues, Xylem and Phloem, Woody Plants, Leaves, Light and Plants, Transpiration, Guard Cells, Leaf Identification, Plant Life Cycles, Seed Plant Life Cycles, Parts of a Flower, Matured Ovaries (Fruits), Types of Fruit.



Part 1 has 7 Lessons of 50 Minutes and 18 Page Work Bundle, Definition of a Plant and Breaking that Definition Down, Plant and Animal Cells, Ways Humans Use Plants, Energy Flow of Life, Visual Tour of Some Amazing Plants, Types of Scientist, Scientific Method, Step by Step Drawing of Scientific Method, Understanding Variables, Control, Setting Up Grow Study for Entire Unit, Averages, Finding Averages, Plant Evolution, Kingdoms of Life Diagram, Side Bar on Protists / Algae, Importance of Algae, Looking at Algae under microscope, How to make a Wet Mount Slide, Brown Algae, First Land Plants, Challenges of Early Plants to Terrestrial Environment, First Vascular Plants, Carboniferous Period and Fossil Fuels, Flow Chart of Plant Evolution, Cycads and Gingko, Gnetum & Welwitschia, Gymnosperms, Angiosperms, Timeline Review, Optional lesson on Lichens (Kingdom Fungi), Lichen, Algae Fungi Symbiosis, Types of Lichen, Lichen Field Trip Outside, Quiz on Types of Lichen, Types Introduction to Plants, Set-up of Grow Study, The Scientific Method, Plant Evolution, Plants, Set-up of Grow, Study, The Scientific Method, Plant Evolution

Part 2: 6 Lessons of 50 Minutes and 12 Page Work Bundle, Non-Vascular Plants, Visual Quiz of Vascular vs. Non-vascular, Bryophytes, Moss, Parts of a Bryophyte, Sphagnum Moss, Moss Water Retention Study where students create their own to study to record how much water a clump of moss can retain, Liverworts, Hornworts, Visual Quiz, Bryophyte Life Cycle Diagram, Sporophyte, Gametophyte, Alternations of Generations, Seedless Vascular Plants, Ferns, Fern Life Cycle, Horsetails, Box Games, Crossword Puzzle, End Unit Assessment

Part 3: 8 Lessons of 50 Minutes and 19 Page Work Bundle, Svalbard Seed Depository Case Study, Breakdown of the Definition of a Seed, Parts of a Seed, Seed Dissection Activity, Seed Coat, Seed Dormancy, Factors that Break Seed Dormancy, Parts of a Seed, Factors that break Seed Dormancy, Seed Dispersal, Wind, Male and Female Cones of Gymnosperm, Seed Dispersal Project where student design a seed to be dispersed by wind, Water Dispersal, Animal Dispersal, Tension Dispersal, Visual Quiz of Seed Dispersal Mechanism, Germination, Germination Observation Activity, Peanut Allergies, Parts of Young Plants, Cotyledon, Radicle, Gravitropism, Hypocotyl, Epicotyl, Foliage Leaves, Stems, Nodes, Internodes, Petioles, Visual Quiz Name that part of a Young Plant, Monocotyledons, Dicotyledons, Differences between the two, Visual Quiz of Mono or Dicot, Case Study on George Washington Carver, Box Game Review, Crossword Puzzle, End of Unit Assessment

Part 4: 11 Lessons of 50 minutes and 20 Page Work Bundle, Important Role of Roots, Types of Roots Water and Mineral Uptake, Root Hairs, Water Uptake and Photosynthesis, Hydroponics, Tropisms, + and – Tropism, Name that Tropism Challenge, Plant Hormones, Auxin, Gibberellins, Cytokinin, Absciscic Acid, Ethelene, Types of Plant Tissues, Xylem and Phloem, Woody Plants, Pith, Heartwood, Sapwood, Case Study on Maple Syrup, Cambium Layer, Porcupines and Beavers, Emerald Ash Borer, Inner Bark, Outer Bark, Tree Rings, Dendrochronology, Dendrochronology Lab, Chainsaw Safety, Breakdown of definition of a leaf, 3 Big Aspects of Plants and Light, Optional What's Inside a Leaf Chromatography, Chloroplasts, Photosynthesis, Photosynthetic Equation, Learning the Equation with M&M's, Review of Photosynthesis, Leaves, Light and Plants, Transpiration, Guard Cells, Box Games, Crossword Puzzle, Unit Assessment

Part 5: 10 Lessons of 50 Minutes and 18 Page Work Bundle, Leaf Identification, Leaf Rubbing Activity, Blades, Venation, Leaf Margins, Leaf Base, Leaf Apex, Petiole, Simple vs. Compound Leaves, Identifying some common leaves, Maples, Oak, Beech, Pines, Poisonous Plants, Case Study on Poison Ivy, Poison Ivy Identification, Ivy Identification Quiz, Other Poisonous Plants, Deciduous Trees, Conifers, Identifying Conifers, Tree Identification Visual Quiz, , Plant Life Cycles, Seed Plant Life Cycles, Gymnosperm, Male vs. Female Cone, Angiosperm, Pollen, Annuals, Biennials, Perennials, Interpretive Dance Plant Life Cycles Group Activity, Flowers, Amazing Flowers Visual Tour, Parts of a Flower, Step by Step drawing on a flower with Parts, Matured Ovaries (Fruits), Stamen, Filament, Anther, Pistil, Stigma, Style, Ovary, Ovule, Sepal, Petals, Nectar Guides, How Flowers Attract Pollinators, Flower Dissection Lab, Visual Quiz Name that Part of a Flower, Exotic Fruits Visual Tour, Poisonous Berries, How Flowers become Fruits, Fruit or Vegetable Visual Standing Quiz, Parts of a Fruit, Epicarp, Mesocarp, Endocarp, Fleshy and Dry Fruits, Simple Fruits, Berries, Drupe, Pome, Aggregate Fruit, Multiple Fruit, Dehiscent Dry Fruit, Legumes, Indehiscent, Animals and Fruits / Seed Dispersal, Uses of Plants Wrap-up, Box Game Review, Crossword Puzzle, Unit Assessment

Botany Unit Part 1 : Part 1 has 7 Lessons of 50 Minutes and 18 Page Work Bundle, Definition of a Plant and Breaking that Definition Down, Plant and Animal Cells, Ways Humans Use Plants, Energy Flow of Life, Visual Tour of Some Amazing Plants, Types of Scientist, Scientific Method, Step by Step Drawing of Scientific Method, Understanding Variables, Control, Setting Up Grow Study for Entire Unit, Averages, Finding Averages, Plant Evolution, Kingdoms of Life Diagram, Side Bar on Protists / Algae, Importance of Algae, Looking at Algae under microscope, How to make a Wet Mount Slide, Brown Algae, First Land Plants, Challenges of Early Plants to Terrestrial Environment, First Vascular Plants, Carboniferous Period and Fossil Fuels, Flow Chart of Plant Evolution, Cycads and Gingko, Gnetum & Welwitschia, Gymnosperms, Angiosperms, Timeline Review, Optional lesson on Lichens (Kingdom Fungi), Lichen, Algae Fungi Symbiosis, Types of Lichen, Lichen Field Trip Outside, Quiz on Types of Lichen, Types Introduction to Plants, Set-up of Grow Study, The Scientific Method, Plant Evolution, Plants, Set-up of Grow Study, The Scientific Method, Plant Evolution



Part 1 Lesson 1 Botany Intro



Part 1 Lesson 2 Method Grow Study



Part 1 Lesson 3 Plant Evolution



Part 1 Lesson 4 Plant Evo Cont



Part 1 Lesson 5 Opt Lichens



Part 1 Lesson 6 Review Game 10Q



Part 1 Lesson 7 Review Game Answers



Part 1 Work Bundle Answers



Part 1 Work Bundle Print



Part 1 Work Bundle Writable .pdf

Botany Unit Part 2: 6 Lessons of 50 Minutes and 12 Page Work Bundle, Non-Vascular Plants, Visual Quiz of Vascular vs. Non-vascular, Bryophytes, Moss, Parts of a Bryophyte, Sphagnum Moss, Moss Water Retention Study where students create their own to study to record how much water a clump of moss can retain, Liverworts, Hornworts, Visual Quiz, Bryophyte Life Cycle Diagram, Sporophyte, Gametophyte, Alternations of Generations, Seedless Vascular Plants, Ferns, Fern Life Cycle, Horsetails, Box Games, Crossword Puzzle, End Unit Assessment

Botany Unit Part 2



Part 2 Lesson 1 Intro



Part 2 Lesson 2 Mosses



Part 2 Lesson 3 Moss Water Study



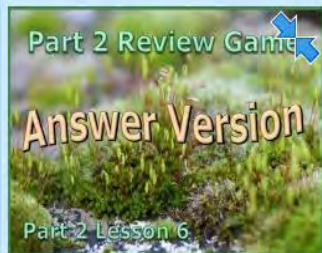
Part 2 Lesson 4 Liverwort Hornwort



Part 2 Lesson 5 Ferns Horsetails



Part 2 Lesson 6 Review Game



Part 2 Lesson 7 Review Game Answers

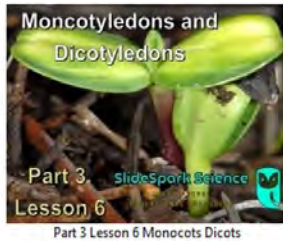
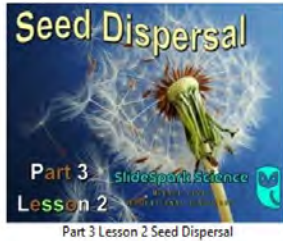


Part 2 Work Bundle Answers



Part 2 Work Bundle Print

Botany Unit Part 3 : 8 Lessons of 50 Minutes and 19 Page Work Bundle, Svalbard Seed Depository Case Study, Breakdown of the Definition of a Seed, Parts of a Seed, Seed Dissection Activity, Seed Coat, Seed Dormancy, Factors that Break Seed Dormancy, Parts of a Seed, Factors that break Seed Dormancy, Seed Dispersal, Wind, Male and Female Cones of Gymnosperm, Seed Dispersal Project where student design a seed to be dispersed by wind, Water Dispersal, Animal Dispersal, Tension Dispersal, Visual Quiz of Seed Dispersal Mechanism, Germination, Germination Observation Activity, Peanut Allergies, Parts of Young Plants, Cotyledon, Radicle, Gravitropism, Hypocotyl, Epicotyl, Foliage Leaves, Stems, Nodes, Internodes, Petioles, Visual Quiz Name that part of a Young Plant, Monocotyledons, Dicotyledons, Differences between the two, Visual Quiz of Mono or Dicot, Case Study on George Washington Carver, Box Game Review, Crossword Puzzle, End of Unit Assessment



Botany Unit Part 3

Botany Unit Part 4: 11 Lessons of 50 minutes and 20 Page Work Bundle,
Important Role of Roots, Types of Roots Water and Mineral Uptake, Root Hairs,
Water Uptake and Photosynthesis, Hydroponics, Tropisms, + and – Tropism,
Name that Tropism Challenge, Plant Hormones, Auxin, Gibberellins,
Cytokinin, Absciscic Acid, Ethelene, Types of Plant Tissues, Xylem and Phloem,
Woody Plants, Pith, Heartwood, Sapwood, Case Study on Maple Syrup,
Cambium Layer, Porcupines and Beavers, Emerald Ash Borer, Inner Bark,
Outer Bark, Tree Rings, Dendrochronology, Dendrochronology Lab, Chainsaw
Safety, Breakdown of definition of a leaf, 3 Big Aspects of Plants and Light,
Optional What's Inside a Leaf Chromatography, Chloroplasts, Photosynthesis,
Photosynthetic Equation, Learning the Equation with M&M's, Review of
Photosynthesis, Leaves, Light and Plants, Transpiration, Guard Cells, Box
Games, Crossword Puzzle, Unit Assessment

Botany Unit Part 4



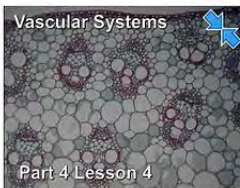
Part 4 Lesson 1



Part 4 Lesson 2



Part 4 Lesson 3



Part 4 Lesson 4



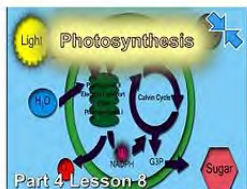
Part 4 Lesson 5



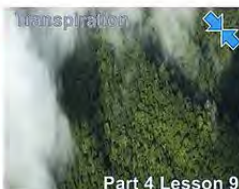
Part 4 Lesson 6



Part 4 Lesson 7



Part 4 Lesson 8



Part 4 Lesson 9



Part 4 Lesson 10



Part 4 Lesson 11

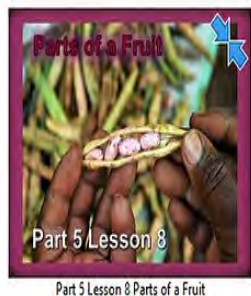
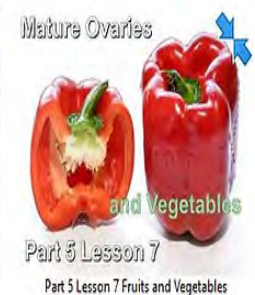
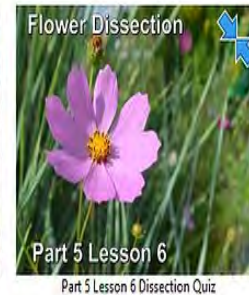
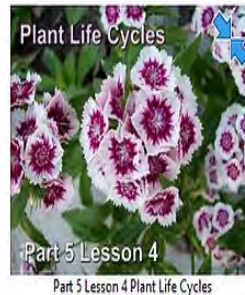


Part 4 Work Bundle Answers



Part 4 Work Bundle Print

Botany Unit Part 5: 10 Lessons of 50 Minutes and 18 Page Work Bundle, Leaf Identification, Leaf Rubbing Activity, Blades, Venation, Leaf Margins, Leaf Base, Leaf Apex, Petiole, Simple vs. Compound Leaves, Identifying some common leaves, Maples, Oak, Beech, Pines, Poisonous Plants, Case Study on Poison Ivy, Poison Ivy Identification, Ivy Identification Quiz, Other Poisonous Plants, Deciduous Trees, Conifers, Identifying Conifers, Tree Identification Visual Quiz, , Plant Life Cycles, Seed Plant Life Cycles, Gymnosperm, Male vs. Female Cone, Angiosperm, Pollen, Annuals, Biennials, Perennials, Interpretive Dance Plant Life Cycles Group Activity, Flowers, Amazing Flowers Visual Tour, Parts of a Flower, Step by Step drawing on a flower with Parts, Matured Ovaries (Fruits), Stamen, Filament, Anther, Pistil, Stigma, Style, Ovary, Ovule, Sepal, Petals, Nectar Guides, How Flowers Attract Pollinators, Flower Dissection Lab, Visual Quiz Name that Part of a Flower, Exotic Fruits Visual Tour, Poisonous Berries, How Flowers become Fruits, Fruit or Vegetable Visual Standing Quiz, Parts of a Fruit, Epicarp, Mesocarp, Endocarp, Fleshy and Dry Fruits, Simple Fruits, Berries, Drupe, Pome, Aggregate Fruit, Multiple Fruit, Dehiscent Dry Fruit, Legumes, Indehiscent, Animals and Fruits / Seed Dispersal, Uses of Plants Wrap-up, Box Game Review, Crossword Puzzle, Unit Assessment



Botany Unit Part 5

Curriculum Guide

Number of Lessons in each unit (50 min, daily lessons) and difficult rating scale / intended grade level.

 =Easier,

 = More difficult,

 =Most difficult

Earth Science Units	Daily Lessons	Intended Grade	
Geology Topics Unit	60 Lessons	6-8 medium difficulty	
Weather and Climate Unit	40 Lessons	6-8 medium difficulty	
Astronomy Unit	60 Lessons	6-8 medium difficulty	
Weathering, Soil Sciences	28 Lessons	5-7 easier	
Rivers and Water Quality	25 Lessons	5-7 easier	
Water Molecule Unit	20 Lessons	5-7 easier	

Life Science Units

Life Science Units	Daily Lessons	Intended Grade	
Ecology Feeding Levels Unit	13 Lessons	5-6 easier	
Ecology Interactions Unit	30 Lessons	5-6 easier	
Ecology Abiotic Factors Unit	24 Lessons	5-6 easier	
Botany Unit	50 Lessons	5-7 easier	
Evolution and Natural Selection	40 Lessons	5-7 easier	
Taxonomy and Classification	50 Lessons	6-8 medium difficulty	
Infectious Diseases Unit	30 Lessons	7-9 more difficult	
DNA and Genetics Unit	42 Lessons	8-10 most difficult	
Human Body Systems Unit	85 Lessons	6-8 medium difficulty	
Cell Biology Unit	30 Lessons	8-10 most difficult	

Physical Science

	Daily Lessons	Intended Grade	
Laws of Motion and Machines Unit	33 Lessons	8-10 most difficult	
Matter Energy and the Environment	58 Lessons	7-10 medium difficulty	
Atoms and Periodic Table Unit	44 Lessons	8-10 most difficult	
Science Skills Unit	30 Lessons	5-7 medium difficulty	

[Physical Science Curriculum](#)

[Entire SlideSpark Science Curriculum](#)



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Our fully editable .pptx and .doc resources are perfect for educators looking to bring enthusiasm and creativity to their lessons. We encourage you to make changes to fit your needs and style. As science educators, we're committed to providing students with the tools they need to succeed in the classroom and beyond. Each unit in the curriculum includes a range of resources that have been developed through extensive research and use in a busy classroom. Our teaching approach is designed to make science education engaging and exciting for learners of all ages. We offer a one-of-a-kind science curriculum that will challenge, inspire, and educate students to become tomorrow's scientists and leaders. Join us today and learn more about how our program can help you achieve your classroom goals.

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Sincerely,

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EDUCATIONAL RESOURCES



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