

## **Lesson Parts & Duration**

## Total Duration: 1 hour

• Connections between a Series of Scientific Ideas (Sequence)

## Subject(s)

• Connections between a Series of Scientific Ideas (Sequence) (RI.2.3)

## Objective

• <u>Students will</u> determine the correct order of scientific ideas.

## Materials

- **Required:** copy of informational text, "Pollination: A Dance from Plant to Plant," by Jennifer Kaul (projected for students or enough copies for students) (page 5)
- paper
- pencil
- chart paper or white board
- document camera or interactive whiteboard for displaying text
- **Optional:** student copies of Sequencing Design "Thinking Design" graphic organizer (page 6),
- **Optional:** printable "Exit Slip" (page 7)
- **Optional:** printable "Break Up Your Day" brain/movement break ideas (page 8)

### **Instructional Setting**

• Students should be seated with or near another student for partner work

## Throughout this lesson, you will find:

- Scripted Text indicates things that need to be said directly. Bullets starting with a "T" followed by *italicized type* indicate scripted text
- Clarifiers within scripted text are in orange
- Teacher Directions indicate things you should be doing
- \* Side notes provide helpful hints, ELL strategies, differentiation and information
- Break Up Your Day (Brain/Movement Breaks) are in green boxes (at the end)

## Remember!

Quality over quantity. All components do not have to be accomplished; lessons may be ended at any time and resumed later.

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## Instructional Plan: 60 minutes

## Subject

• Connections between a Series of Scientific Ideas (Sequence)

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## Materials

- **Required:** copy of informational text, "Pollination: A Dance from Plant to Plant," by Jennifer Kaul (projected for students or enough copies for students) (page 5)
- paper
- pencil
- chart paper or white board
- document camera or interactive whiteboard for displaying text
- **Optional:** student copies of Sequencing Design "Thinking Design" graphic organizer (page 6),
- **Optional:** printable "Exit Slip" (page 7)

Depending on students' reading levels, you may want to provide a copy for each student to follow along. Or you can just use one master text and project it so that all students can see.

#### Introduction

- *T* Today we will be learning about pollination.
- *T* We will also be learning about how scientific ideas connect with each other and how to put them in the correct order.
- *T* What are some things you need to do in a certain order?
- *T* Turn and tell a partner some things you know of that must be done in a certain order.

Provide about 30 seconds for discussion. Monitor to ensure all students have a partner and are on task.

- *T* Who would like to share the things you talked about with your partner? What are some things that you must do in a certain order? Call on students. Answers will vary but may include: playing games, making food from a recipe, daily routines
- **T** Great job!
- *T* We are now going to read a text about pollination.
- *T* We will read it the first time to get background information about the process of pollination.
- *T* The second time we read it; we will work to sequence, or put in order, the process of pollination.

Read the informational text, "Pollination: A Dance from Plant to Plant" aloud for students. You may provide them with a copy if you would like them to follow along.

## **Connecting a Series of Scientific Ideas**

#### After reading the entire text, review the process of pollination.

- *T* Before we put the steps of pollination in order, let's first determine what these steps are.
- *T* What are some things that must happen for pollination to occur?
- *T* Turn and tell a partner one thing that must happen for pollination to occur.
- T Look back at the text if you need help.

Provide about 30 seconds to 1 minute for discussion. Monitor to ensure all students have a partner and are

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tion: A Dance from Plant to Plant

Plants are important. They provide food for people and animals. They release oxygen into the air to make it clean to breathe. Like all living things, plants create offspring. However, many plants need help to make their seeds. They receive this help

Pollination is when an insect or other creature moves the pollen of one flower to another flower of the same species. Some common pollinators are bees, butterflies, birds, and task: When these kinet plans vital a flower to gather pollen or drink netart, they get some of the plant's pollen on their body. After feeding on one flower, they move on to another flower. The pollen on their body bushes against the pollen of that flower which, in time, helps the plant grow its seeds.

Many plants need pollination, including those that produce the food that people eat. For example, apples and oranges are grown with the help of pollination. Their tree have flowers that blossom before they grow their fruit. Within the pieces of fruit grow the plant's tiny seeds.

Pollination helps plants to make seeds. This allows new plants to grow, many of

which provide the food people and animals need to survive

through the process of pollination.

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#### on task.

#### Use either chart paper or the dry erase board to list the students' ideas.

- **T** Who would like to share the steps you talked about with your partner? Call on students and write their responses in the order in which they are shared. Answers should include: a pollinator (bee, butterfly, bird, bat) visits a flower, the pollinator gets some of the flower's pollen on its body, the pollinator visits another flower of the same species, the pollen brushes off from the pollinator onto the flower, the plant makes seeds, the seeds grow into new flowering plants
- Т Good!
- T Now let's work to put these ideas in order!
- **T** We will use a "Thinking Design" graphic organizer to help us.
- T We listed many steps that take place during the scientific process of pollination.
- **T** Which of these steps happens first?
- *T* Turn and tell your partner what you think and why.

#### Provide about 30 seconds to 1 minute for discussion. Monitor to ensure all students have a partner and are on task.

- Т What is the first step of pollination? Call on students. Answer: A pollinator (bee, butterfly, bird, bat) visits a flower.
- T That's right!
- *T* Let's write that in the first box of our chart!
- **T** What happens next?
- Т Turn and tell your partner what you think and why.

#### Provide about 30 seconds to 1 minute for discussion. Monitor to ensure all students have a partner and are on task.

- T What is the second step of pollination? Call on students. Answer: The pollinator gets some of the flower's pollen on its body.
- **T** Great job!
- *T* Let's write that in the second box of our chart!
- T What happens after that?
- Т Turn and tell your partner what you think and why.

Provide about 30 seconds to 1 minute for discussion. Monitor to ensure all students have a partner and are on task.

- T What is the third step of pollination? Call on students. Answer: The pollinator visits another flower of the same species.
- T Nice work!
- *T* Let's write that in the third box of our chart!
- T Then what happens?
- Turn and tell your partner what you think and why. Т

Provide about 30 seconds to 1 minute for discussion. Monitor to ensure all students have a partner and are on task.

- T What is the fourth step of pollination? Call on students. Answer: The pollen brushes off from the pollinator onto the flower.
- **T** You got it!
- *T* Let's write that in the fourth box of our chart!
- What is the next step of the process of pollination? Т
- Turn and tell your partner what you think and why. Т

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Have students fill out the graphic organizer provided or create one of their own.



















WRITING with DESIGN



Provide about 30 seconds to 1 minute for discussion. Monitor to ensure all students have a partner and are on task.

- T What is the next step of pollination? Call on students. Answer: The plant makes seeds.
- *T* You got it!
- *T* Let's write that in the fifth box of our chart!
- *T* What is the last step of the process of pollination?
- *T* Turn and tell your partner what you think and why.

Provide about 30 seconds to 1 minute for discussion. Monitor to ensure all students have a partner and are on task.

- T What is the last step of pollination? Call on students. Answer: The seeds grow into new flowering plants.
- **T** Right!
- *T* Let's write that in the last box of our chart!
- *T* Now, tell your partner the steps of pollination in the correct order.

#### Setting up Paper

*T* Write your name and date in the top right-hand corner of your paper. See example & model so students can follow.

\*You may use the exit slip at the end of this lesson as a quick assessment of student understanding. Either print them out (page 12), or simply have students copy the problems on a half sheet of paper.

	Name: <u>ANSWER KEY</u> Date:				
	<b>Exit Slip:</b> Pollination Sequencing				
Put the steps of pollination in order by numbering each step. You may use the text and your graphic organizer to help you. The first one has been done as an example.					
3	The pollinator visits another flower.				
6	The seeds grow into new plants.				
_1_	_A pollinator visits a flower.				
4	The pollen brushes off onto the flower.				
2	The pollen gets on the pollinator's body.				
5	The plant makes seeds.				

# Make sure to "Break Up Your Day!"

Now is a great time to take a break and get students re-energized. See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 8)



## Pollination: A Dance from Plant to Plant

by Jennifer Kaul

Plants are important. They provide food for people and animals. They release oxygen into the air to make it clean to breathe. They provide shade and shelter for many creatures, and they make the world a more beautiful place. Like all living things, plants create offspring. However, many plants need help to make their seeds. They receive this help through the process of pollination.

Pollination is when an insect or other creature moves the pollen of one flower to another flower of the same species. Some common pollinators are bees, butterflies, birds, and bats. When these living things visit a flower to gather pollen or drink nectar, they get some of the plant's pollen on their body. After feeding on one flower, they move on to another flower. The pollen on their body brushes against the pollen of that flower which, in time, helps the plant grow its seeds.

Many plants need pollination, including those that produce the food that people eat. For example, apples and oranges are grown with the help of pollination. Their trees have flowers that blossom before they grow their fruit. Within the pieces of fruit grow the plant's tiny seeds.

Pollination helps plants to make seeds. This allows new plants to grow, many of which provide the food people and animals need to survive.

Missouri Botanical Garden. (2009). *Pollination*. Retrieved from <a href="http://www.mbgnet.net/bioplants/pollination.html">http://www.mbgnet.net/bioplants/pollination.html</a>. Pollinator Partnership. (n.d.). *What are pollinators*? Retrieved from <a href="http://www.pollinator.org/pollination.htm">http://www.pollinator.org/pollination.html</a>. United States Department of Agriculture Forest Service. (n.d.). *What is pollination*? Retrieved from <a href="http://www.fs.fed.us/wildflowers/pollinators/What\_is\_Pollination/">http://www.fs.fed.us/wildflowers/pollinators/What\_is\_Pollination/</a>.

References



# Sequencing Design







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	Name:	Date:			
	<b>Exit Slip:</b> Pollination Sequencing				
Put the steps of pollination in order by numbering each step. You may use the text and your graphic organizer to help you. The first one has been done as an example.					
The pollinator visits another flower.					
The seeds grow into new plants.					
1_ A pollinator visits a flower.					
The pollen brushes off onto the flower.					
The pollen gets on the pollinator's body.					
The plant makes seeds.					
	Name:	Date:			
	<b>Exit Slip:</b> Pollination Sequencing				
Put the steps of pollination in order by numbering each step. You may use the text and your graphic organizer to help you. The first one has been done as an example.					
The pollinator visits another flower.					
The seeds grow into new plants.					
1 A pollinator visits a flower.					
The pollen brushes off onto the flower.					
The pollen gets on the pollinator's body.					
The plant makes seeds.					
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## Make sure to "Break Up Your Day!"

These can be used in the middle of a lesson or at the end of your lesson. Here are a few engaging movement and brain break ideas to get your students moving and ready to refocus!

## 😽 Break Up Your Day: <u>Body Stretches!</u> 😽

#### 10 minutes

FORMATION: Standing at desks

- Have students begin the day with a series of simple activities lasting 30 seconds or more: jumping jacks, knee lifts, flap arms like a bird, hopping, scissors (feet apart then cross in front, feet apart then cross in back)...
- Follow each activity with a basic stretching movement:
- Reach for the sky runner's stretch
- Butterfly stretch (sit with bottom of feet together)
- Knee to chest, rotate ankles, scratch your back

Hold stretches for 10 - 30 seconds. Repeat a different simple activity followed by a new basic stretch as many times as desired.

## Break Up Your Day: Dance Like a Bee!

- The steps of pollination can almost be thought of as the steps of a dance! Let's have half of the class be flowers and the other half be the bees. The flowers will stay still while the bees move from one flower to another, giving them gentle high fives. We'll start and stop when I say "Buzz."
- "Buzz!" (start)
- "Buzz!" (end)
- Next, we'll switch! If you were a flower, now you'll be a bee! Remember, the flowers stay still and the bees visit one flower after another. We'll start and stop when I say "Buzz."
- "Buzz!" (start)
- "Buzz!" (end)

## 🐺 Break Up Your Day: <u>Thumbs Up!</u> 😽

- Student is called on to state their favorite number from 1 to 20, use name cards or equity cards if available.
- Other students signify whether they see that number somewhere in the classroom.
- Tally their responses.
- The number with the most votes or Thumbs Up is the winner for the activity!

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