

General Information

Lesson Parts & Duration

Total Duration: 2 to 2 ½ hours

- Segment 1: Observations and Drawing Inferences from a Photograph (45-60 Minutes)
- Segment 2: Connections between a Series of Scientific Ideas (Sequence) (45-60 Minutes)
- Segment 3: Writing with Supporting Details (30-45 Minutes)

Subject(s)

- Observations and Drawing Inferences from a Photograph (RI.2.1, RI.2.7, SL.2.1, SL.2.2)
- Connections between a Series of Scientific Ideas (Sequence) (RI.2.3)
- Writing with Supporting Details (RI.2.1, RI.2.2, RI.2.6, W.2.2)

Objective

- Students will ask and answer questions based on information in pictures.
- Students will engage in collaborative conversations by posing or responding to specific questions.
- Students will determine the correct order of scientific ideas.
- Students will identify supporting details in a text.
- Students will write an informational paragraph using supporting details.

Materials

- **Required:** pictures of pollinators (page 13) (color copy recommended)
- **Required:** copy of informational text, “Pollination: A Dance from Plant to Plant,” by Jennifer Kaul (projected for students or enough copies for students) (page 12)
- paper
- pencil
- chart paper or white board
- document camera or interactive whiteboard for displaying photographs and text
- **Optional:** student copies of Sequencing Design “Thinking Design” graphic organizer (page 14),
- **Optional:** printable “Exit Slip” (page 16) (segment 2)
- **Optional:** student copies of Brainstorming Design “Thinking Design” graphic organizer (page 15)
- **Optional:** printable “Break Up Your Day” brain/movement break ideas (page 17)

Instructional Setting

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

Throughout these lessons, 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.

Instructional Plan: Segment 1: 45-60 minutes

Subject

- Observations and Drawing Inferences from a Photograph

Objective

- Students will ask and answer questions based on information in pictures.
- Students will engage in collaborative conversations by posing or responding to specific questions.

Materials

- **Required:** pictures of pollinators (page 13) (color copy recommended)
- document camera or projector for displaying photograph

Introduction: Photographs, Pollinators, & Pollination

T Today we will be analyzing 2 photographs.

T Who can tell me what a photograph is? **Call on students. Answer: A real picture not a drawing or something taken with a camera.**

T Excellent!

T A photograph is a picture that someone takes with a camera of something around us in the world.

T It is not a drawing that someone made.

T Boys and girls, raise your hand if you have ever taken a photograph before?

T If you have, please turn and tell someone next to you what you took a photograph of? **Give a couple seconds for students to share.**

T Wow, I heard that some of you took a photograph of **list some things that you heard them mention.**

T Today we have a very important job, we will be analyzing photographs.

T Analyzing is a big word we use for studying something or looking at all of the details.

T Imagine a detective who is searching for clues with a magnifying glass.

T We need to study all of the little details.

T Everyone pretend to hold up a magnifying glass to study something. **Model this so that they can imitate you.**

T To analyze the photos, we will be asking and answering questions about the pictures.

T We are going to be thinking like scientists.

T Scientists are people who study the natural world, including its living things.

T Some living things studied by scientists are pollinators.

T Pollinators are creatures that travel from flower to flower for food.

T In the process, they transfer pollen, a yellow powdery material.

T This pollen helps plants make seeds.

Analyzing Photographs (photographs found on page 13)

T Like a detective, we are now going to be analyzing a photograph.

T Remember that when we analyze something we are studying all of the parts very closely, looking at all of the little details.

T I am going to show you a photograph now.

T Look quietly and carefully at the photograph.

T Remember to look with your eyes and not with your mouth.

T Keep all the little details you notice to yourself, we will be sharing them with a buddy in a little bit. **Give students about 30 seconds to look at the pictures. Show photograph under document camera or project onto screen; keep photo up during the rest of the lesson.**

Speaking & Listening Protocols

On your feet/ Get ready to meet/ Go and Greet (should take less than one minute)

- Students stand up and put their hand up in the air
- Students find another student that has their hand up to have a “new” partner (and get them moving around)
- Once they are with their new partner, they put their hands down and face the teacher

Back to Back and Face to Face

- When in pairs, direct students to stand back to back
- Ask the students to consider the question
- Give students at least a minute to consider their response

Ask, Answer, and Justify

- Put students in pairs: have them assign themselves a number 1 or 2
- Roles for number assignments:
 - 1's will ask the question first and 2's will respond
 - Then 2's will ask the question and 1's will respond

T We are going to be sharing our thoughts and ideas with a buddy now.

T When I say the magic word, which is “flower”, you will stand up and put your hand up! **Model this so students can see what you mean.**

T Then you will find a buddy who also has their hand up.

T Remember, if someone’s hand is down, that means they already have a buddy.

T I will be counting backwards from 10, and by the time I get to zero, you need to be standing respectfully next to your partner.

T Please remember to ASK your friends if they would like to be your partner (Would you please be my partner? vs You are my partner!).

T This is a respectful way to find a partner.

T Once you found your partner make sure your hands are down, you are standing next to each other, and you are facing me.

T Let’s practice this now.

T Ok, FLOWER!

T 10-9-8-7-6-5-4-3-2-1.

T Remember to not talk while you are moving. **Remind them of this as they are locating a partner.**

Practice Finding a New Buddy

T Great job!

T Let’s try it again and find another buddy.

T Remember, hands up, find a partner, ask respectfully, hands down, and face me! **Model this as you explain.**

T Now that you are with your partner, please stand back to back. **Model this with two students.**

T Remember this means that your backs are touching and you can’t see each other’s faces!

T When I ask my question, you will think first.

T Then when I say “Detectives”, you will turn around and share your answers.

T With your partner, right now you need to decide who is going to be a “1” and who is going to be a “2”. **Give a moment for them to decide. If they are struggling assign them either a 1 or a 2.**

T For the first question 1’s will ask the question first, and then 2’s will share their answers.

T Then you will switch and 2’s will ask the same questions and then 1’s will share their answers.

T Please hold up your fingers and show me if you are a 1 or a 2.

T Hold up 1 finger if you are a “1” and 2 fingers if you are a “2”.

T Great, it looks like you all know if you are a 1 or a 2.

Analyzing the Pictures

T Hold up your imaginary magnifying glass if you are ready to be a detective and analyze photographs!

- T** Good, now please stand back to back again so you can think about the question I am asking. **Make sure students can see the pictures projected on the screen.**
- T** What did you notice first when you saw the pictures? **Give 30 seconds for the students to think of their answers.**

Partner Discussion

- T** Ok, Detectives!
- T** Turn around.
- T** 1's please ask the 2's "What did you notice when you first saw the picture?"
- T** 2's share your answer in a complete sentence "The first thing I noticed was ____ because ____."
- T** 2's make sure you are being very specific and explaining why.
- T** Take turns – once the 2's have answered switch and 2's ask the 1's the same question.

Questions:

- What did you notice when you first saw the picture?
- Why? Be very specific.
- The first thing I noticed was ____ because ____.

Monitor this and provide support as needed. You may want to go up to each group and model this discussion.

Give time to complete this task.

Finding a New Buddy

- T** Great job sharing with your buddy.
- T** Now we will find a new buddy, the same way we did last time. **Model each step as you remind students.**
- T** Remember, don't move until I say the magic word, "Flower".
- T** Hands up please.
- T** Find a different partner; decide who is the 1 and who is the 2.
- T** Once you decide, hold up either 1 finger or 2.
- T** Then stand back to back.
- T** Ok, Flower!
- T** Go find a buddy. **Give a moment for them to decide. If they are struggling assign them either a 1 or a 2.**

Give time to complete this task. Monitor students and provide assistance as needed.

Analyzing the Pictures

- T** Let's look at the pictures again.
- T** Don't turn around until I say the magic word which is, "Detectives."
- T** What do you notice is different about the two pictures?
- T** Think about your answer.
- T** Don't turn around until I say the magic word, "Detectives."

Partner Discussion

- T** Ok, Detectives!
- T** Please turn face to face.
- T** Remember to take turns.
- T** Partner 1 will go first and ask the question, "What is the same about the two pictures? Why?"
- T** Then partner 2 will answer, "The two pictures are alike because _____. I noticed this because _____."
- T** Then switch jobs.

Questions:

- What is the same about the two pictures?
- Why? Be very specific.
- The two pictures are alike because _____. I noticed this because _____.

Monitor this and provide support as needed. You may want to go up to each group and model this discussion.

Give time to complete this task.



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 17)

Analyzing the Pictures

- T* Please turn back to back again with the same partner.
T But don't turn around until I say, “Detectives”.
 Let's look again at the pictures. What are you wondering about?

Partner Discussion

- T* Ok, Detectives!
T Please turn face to face.
T Remember to take turns.
T Partner 1 will go first and ask the question, “What are you wondering about when you look at the 2 photographs? Why?”
T Then partner 2 will answer, “I am wondering about ____ because ____.”
T Then switch jobs.

Questions:

- What are you wondering about when you look at the 2 photographs?
- Why? Be very specific.
- I'm wondering about ____ because ____.

Monitor this and provide support as needed. You may want to go up to each group and model this discussion.

Give time to complete this task.

Finding a New Buddy

- T* Good work sharing with your buddies.
T Now we will find our last new buddy, the same way we have been doing. Model each step as you remind students.
T Hands up please.
T Find a different partner; decide who is the 1 and who is the 2.
T Once you decide hold up either 1 finger or 2.
T Then stand back to back.
T Ready, Flower!
T Go find a new buddy. Give a moment for them to decide. If they are struggling assign them either a 1 or a 2.

Analyzing the Pictures

- T* Now instead of looking at these pictures like a detective we are going to think like a scientist.
T Who remembers earlier what a scientist does? Call on students.
T I told you that scientists are people who study the natural world and its living things.
T This includes plants and pollinators.

Questions:

- Which insect seems like the better pollinator?
- Why? Be very specific.
- In my opinion, the insect in picture #__ looks like a better pollinator because ____.

T Remember how we said that pollinators transfer pollen from one flower to another?

T Which insect seems like the better pollinator? Why?

Partner Discussion

T Ok, Detectives!

T Please turn face to face.

T Remember to take turns.

T Partner 1 will go first and ask the question, “Which insect seems like the better pollinator? Why?”

T Then partner 2 will answer, “In my opinion, the insect in picture #___ looks like a better pollinator because_____.”

T Then switch jobs.

Monitor this and provide support as needed. You may want to go up to each group and model this discussion.

Give time to complete this task.



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See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 17)

Instructional Plan: Segment 2: 45-60 minutes

Subject

- Connections between a Series of Scientific Ideas (Sequence)

Objective

- Students will 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 12)
- 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 14),
- **Optional:** printable “Exit Slip” (page 16)

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.

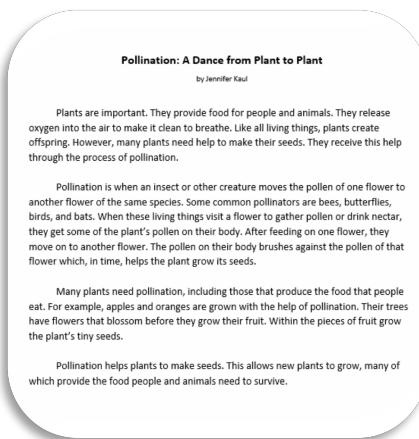
Read the informational text, “Pollination: A Dance from Plant to Plant” aloud for students. You may provide them with a copy if you would like them to follow along.

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



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

T 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.

T 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?

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 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?

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 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?

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 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!

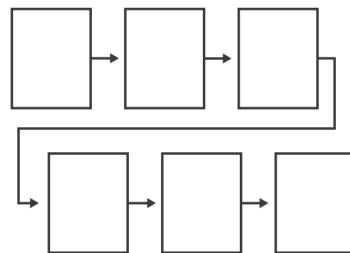
T What is the next step of the process of pollination?

T Turn and tell your partner what you think and why.

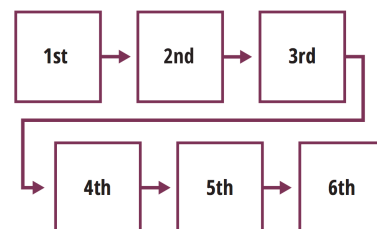
Differentiation:

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

Sequencing Design



Sequencing Design



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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 16), or simply have students copy the problems on a half sheet of paper.

Name: _____ Date: _____

ANSWER KEY

Exit Slip: Segment 2
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 17)

Instructional Plan: Segment 3: 30-45 minutes

Subject

- Writing with Supporting Details

Objective

- Students will identify supporting details in a text.
- Students will write an informational paragraph using supporting details.

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 12)
- paper
- pencil
- chart paper or white board
- document camera or interactive whiteboard for displaying text
- **Optional:** student copies of Brainstorming Design “Thinking Design” graphic organizer (page 15)

If this is the first segment you are starting with, please read the informational text aloud to the students for pleasure and then begin the lesson.

Introduction

- T* Today we will be learning how to write using details from a text.
- T* We will be using the text “Pollination: A Dance from Plant to Plant.”
- T* First, who can tell me what supporting details are?
- T* Turn and tell your partner what you think supporting details are 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 are supporting details? **Call on students.** Answer: Supporting details are pieces of information that support, or tell more about, the main idea of a text.
- T* Great job!
- T* Authors use supporting details to help their readers learn more about a topic and better understand what they write.

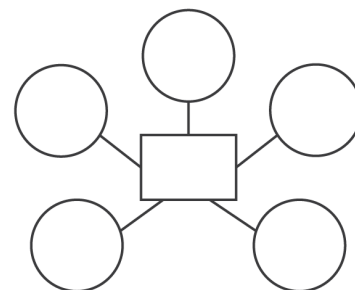
Identifying Supporting Details

- T* Before we begin writing using supporting details, let’s see how the author of “Pollination: A Dance from Plant to Plant” did this.
- T* We’ll use a Brainstorming Design graphic organizer to help us.

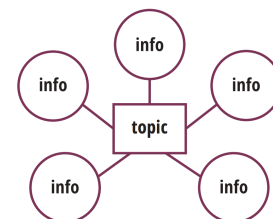
Project a copy of the Brainstorming Design “Thinking Design” graphic organizer or create one on the board or a piece of chart paper.

- T* In the center of the graphic organizer, we’ll write an idea the author shares.
- T* In the first paragraph, the author states that, “Plants are important.”
- T* Let’s write that in the center box of our Brainstorming Design.
- T* Now, according to the author, why are plants important?

Brainstorming Design



Brainstorming Design



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WRITING with DESIGN

T What are some reasons, or details, the author shares to support this idea?

T Turn and tell your partner what you think supporting details are 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 are some supporting details the author uses to tell us why plants are important?

T We will write these supporting details in the circles around the main idea in our Brainstorming Design. **Call on students and write their answers in the graphic organizer. Answers: They provide food for people and animals, they release oxygen into the air/make the air clean to breathe, they provide shade, they provide shelter, they make the world a more beautiful place.**

T Great job!

T These details help us, as readers, understand why plants are important.

Note:

Students may fill out copies of the Brainstorming Design graphic organizer, or they may create their own on paper.

Writing with Supporting Details

T Now that we've learned how authors use supporting details in their texts, it's time for us to use them in our own writing!

T You are going to choose one of the reasons the author thinks plants are important.

T You will then write a paragraph about that reason, using supporting details.

T For example, if you write the plants are important because they provide food, you might mention some types of food that come from plants.

T If you write about how plants make the air clean to breathe, you might tell readers why it is important that the air is clean.

T Before you begin writing, you will fill out a Brainstorming Design graphic organizer to help you organize your ideas.

T Once you are finished filling out your graphic organizer, you may begin writing your paragraph.

T Write your name and the date in the top right hand corner of your paper.

T Remember to use the qualities of a good paragraph.



Checklist for Students

- I indented the first line only
- I started with a topic sentence
- I used complete sentences
- I used transition words
- I used details to support my topic sentence
- I finished with a concluding sentence

Project this checklist or write the points out for students on chart paper or the board.

Provide students time to work on their graphic organizer and write their paragraph. Monitor to ensure all students are on task.

Differentiation:

If students seem to be struggling to get started, you may want to pull a small group of students and fill out the graphic organizer together. Then they can complete their writing independently or with a partner.



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 17)

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.

References

Missouri Botanical Garden. (2009). *Pollination*. Retrieved from <http://www.mbgnet.net/bioplants/pollination.html>.

Pollinator Partnership. (n.d.). *What are pollinators?* Retrieved from <http://www.pollinator.org/pollination.htm>.

United States Department of Agriculture Forest Service. (n.d.). *What is pollination?* Retrieved from https://www.fs.fed.us/wildflowers/pollinators/What_is_Pollination/.

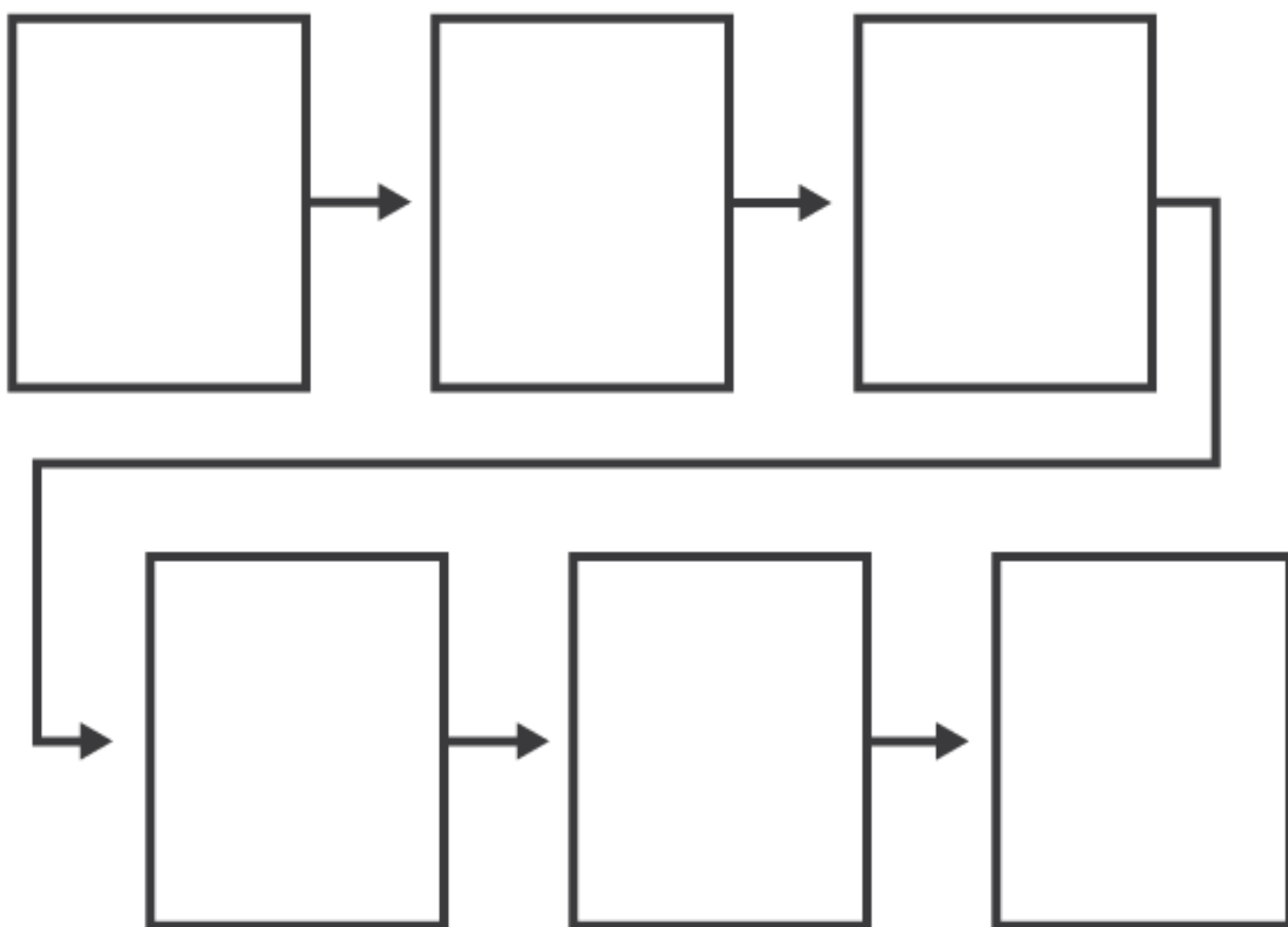
Picture 1



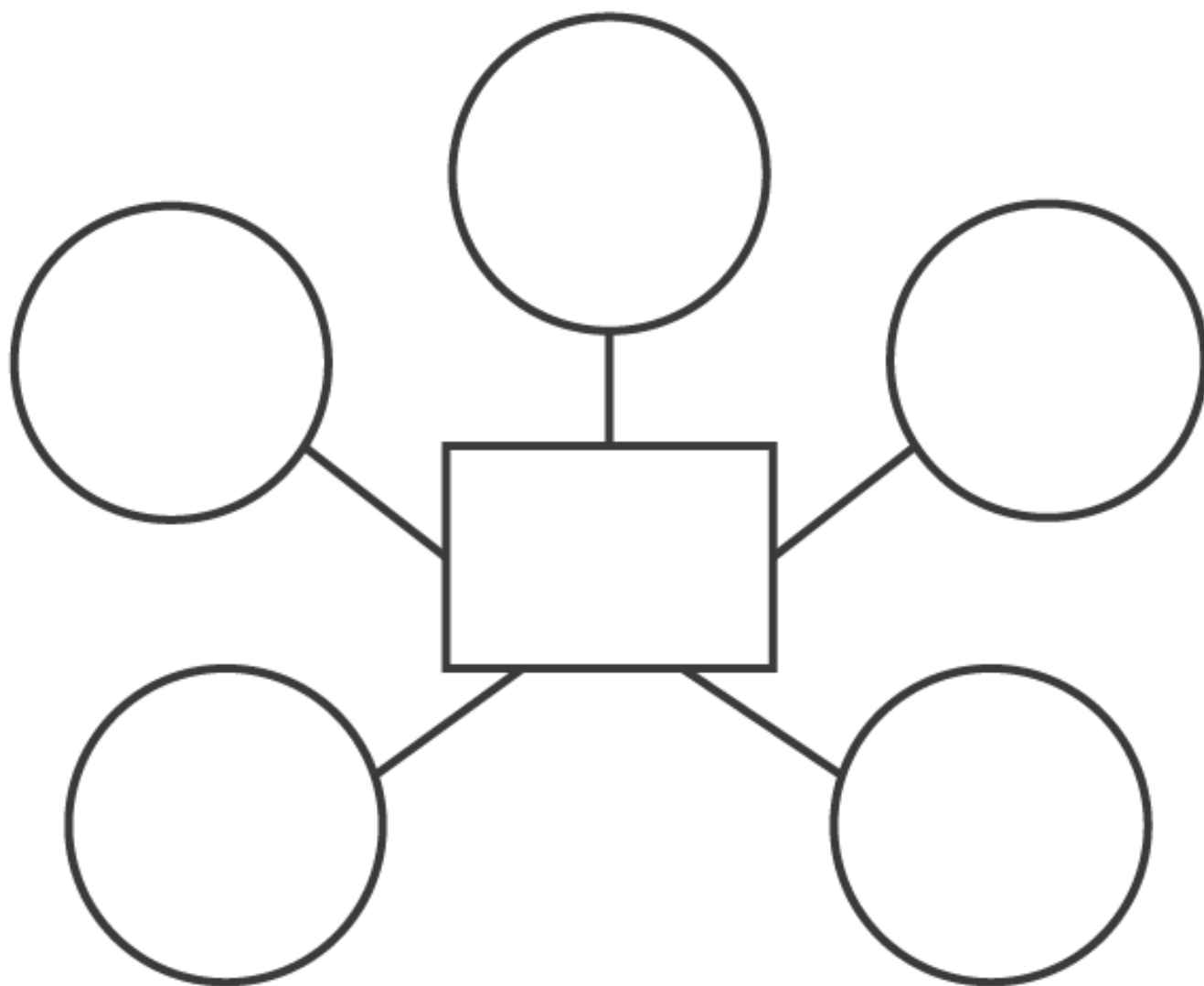
Picture 2



Sequencing Design



Brainstorming Design



Name: _____ Date: _____

Exit Slip: Segment 2

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: _____

Exit Slip: Segment 2

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.

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: Body Stretches!



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: Thumbs Up!



- 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!