

3<sup>rd</sup> Grade Science, Fall 2020

**MYSTERY** science

# The Power of Flowers

STUDENT  
PACKET



# INTRODUCTION

Dear Families,

Welcome to 3<sup>rd</sup> Grade science!

Our first science unit **Power of Flowers**, covers the plant life cycle and heredity. This unit develops the idea that by studying how plants reproduce and pass on their traits, human beings have figured out how to make food plants even more useful. Students first discover how plants reproduce by exploring the process of pollination and fruiting. Then students are introduced to the process of plant domestication (selection of traits based on the inheritance and variation).

During the next 6 weeks, your child will have the opportunity to participate in many kinds of activities like making flowers and bees, dissecting fruits and vegetables, and recording observations on the pages that follow. Some of the activities need supplies that have been provided along with this packet. However, some of the supplies needed for these lessons are perishable (like fruits and vegetables).

This packet has been built in the order of the lessons (see Unit Overview below). You will notice some pages are intended for writing or drawing. Teachers will help guide students through the activities and there are also videos and other visual supports. Thank you for continuing to support your child during this unprecedented time and being a true partner in their education.

Please reach out to your child's teacher with any questions, ideas or to needs specific to your family. We are in this together!

## Unit Overview

Anchor Phenomenon – Stinky Seeds

Lesson 1 – Why Do Plants Grow Flowers?

Lesson 2 – Why Do Plants Give Us Fruit?

Lesson 3 – Why Are Some Apples Red and Some Green?

Lesson 4 – How Could You Make the Biggest Fruit in the World?

Performance Task – Are the Stinky Seeds and Dung Beetles Good for Each Other?

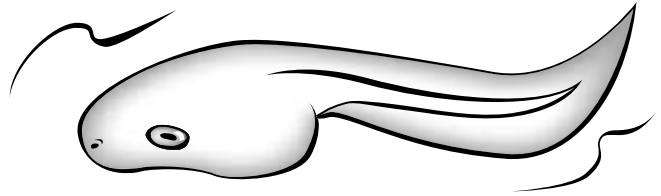
# HAPPY LEARNING!

# TABLE OF CONTENTS

Section	Page
Introduction	1
Table of Contents	2
Does It Have a Life Cycle?	3
Anchor Phenomenon: Stinky Seeds	4
Student Response Page	5
See Think Wonder	6
Stinky Seeds System Model	7
Lesson 1 – Why Do Plants Grow Flowers?	8
Student Response Page	9
Mystery Science Video Note Catcher	10-12
Student Response Page	13
Make a Flower (2 sets single sided to cut)	14-21
Operating Table	22-23
Flowers Go Bats!	24
End of Mystery Assessment	25
Lesson 2 – Why Do Plants Give Us Fruit?	26
Student Response Page	27
Mystery Science Video Note Catcher	28
Science Fruit or Science Vegetable	29
Bee-Free Barbeque	30
Mystery Science Fruit Salad	31
End of Mystery Assessment	32-33
Lesson 3 – Why Are Some Apples Red and Some Green?	34
Student Response Page	35
Mystery Science Video Note Catcher	36
Apple Taste Test	37
A Grape for Junk Food Lovers	38-41
End of Mystery Assessment	42
Lesson 4 – How Could You Make the Biggest Fruit in the World?	43
Student Response Page	44
Mystery Science Video Note Catcher	45-46
Fruit Cards (single sided to cut)	47-50
Odd One Out	51
Pumpkin Time!	52-56
Magic Tomatoes	57-60
End of Mystery Assessment	61-62
Performance Task: Are the Stinky Seeds and Dung Beetles Good for Each Other?	63
Student Response Page	64
Stinky Life Cycles	65
Stinky Life Cycles Performance Task	66-68

# Does It Have a Life Cycle?

How do you decide if an organism goes through a life cycle? Put an X next to the organisms that have a life cycle.



- |                                      |                                    |                                     |
|--------------------------------------|------------------------------------|-------------------------------------|
| <input type="checkbox"/> frog        | <input type="checkbox"/> cow       | <input type="checkbox"/> daisy      |
| <input type="checkbox"/> butterfly   | <input type="checkbox"/> mushroom  | <input type="checkbox"/> chicken    |
| <input type="checkbox"/> grasshopper | <input type="checkbox"/> grass     | <input type="checkbox"/> maple tree |
| <input type="checkbox"/> fern        | <input type="checkbox"/> earthworm | <input type="checkbox"/> human      |
| <input type="checkbox"/> shark       | <input type="checkbox"/> snail     | <input type="checkbox"/> beetle     |
| <input type="checkbox"/> bean plant  | <input type="checkbox"/> mold      | <input type="checkbox"/> crab       |
| <input type="checkbox"/> snake       | <input type="checkbox"/> spider    | <input type="checkbox"/> moth       |

Explain your thinking. Describe the rule or reason you used to decide if an organism has a life cycle.

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# The Power of Flowers

Anchor  
Phenomenon-  
Stinky Seeds

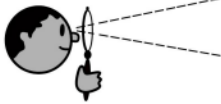


# STUDENT RESPONSE PAGE

DRAW!

WRITE!

# See-Think-Wonder Chart

Name: \_\_\_\_\_

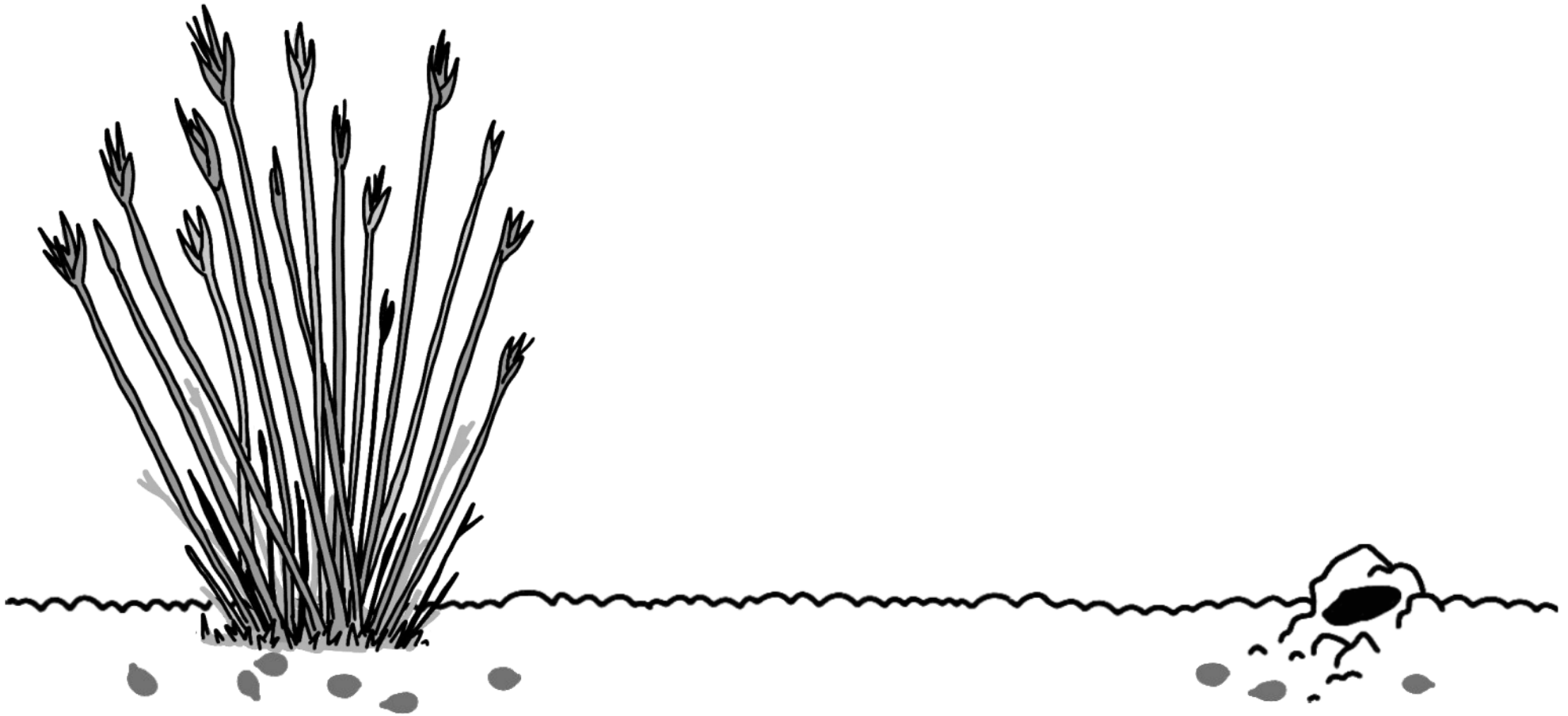
<p><b>See</b></p> <p>What did you observe?</p> 	<p><b>Think</b></p> <p>How can you explain what is happening?</p> 	<p><b>Wonder</b></p> <p>What questions do you have?</p> 

# Stinky Seeds System Model

## Directions:

- 1) Use words and drawings to explain how the stinky seeds formed.
- 2) Use words and drawings to explain how and why the seeds are being moved.
- 3) Use words and drawings to explain how and why the seeds are being buried in little holes.

Name: \_\_\_\_\_





# The Power of Flowers




## Lesson 1:

### Why Do Plants Grow Flowers?

# STUDENT RESPONSE PAGE

DRAW!

WRITE!

Questions in Video	Student Response
Why are bees important? What do you know about “pollination”?	
Can you find the pollen dusters and the stigma on this flower?	
Can you find the pollen dusters and the stigma on this flower?	
Where are the pollen dusters and the stigma on this flower?	
	Page 10

Now that you know the stigma needs pollen on it, in order for the seed pod to grow, what can you do in your greenhouse?	
Describe what you see going on in the video. Does this give you an idea about what you might need to do next?	
So now what would you do, in order to get your vanilla plants to form seed pods?	
What other animals drink nectar from flowers? (Hint... Think of other animals you've noticed hanging around flowers.)	

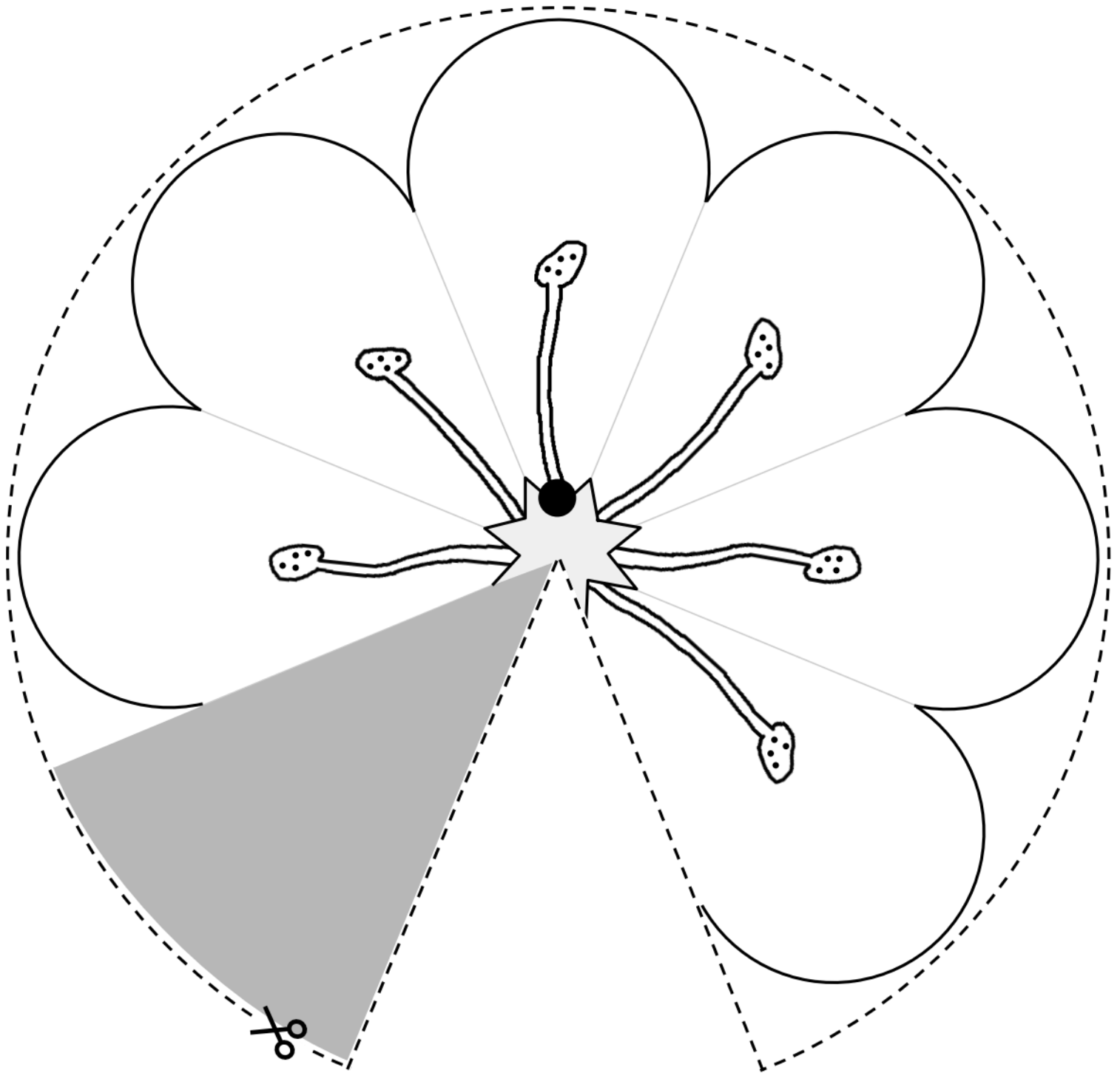
What is the bee looking for in the flower?	
What needs to happen for your flower to make seeds?	
Do you think your flower will make seeds?	
Why do you think that? What evidence do you have?	
How could you change your flower to make it easier for bees to carry pollen to the stigma?	

# STUDENT RESPONSE PAGE

DRAW!

WRITE!

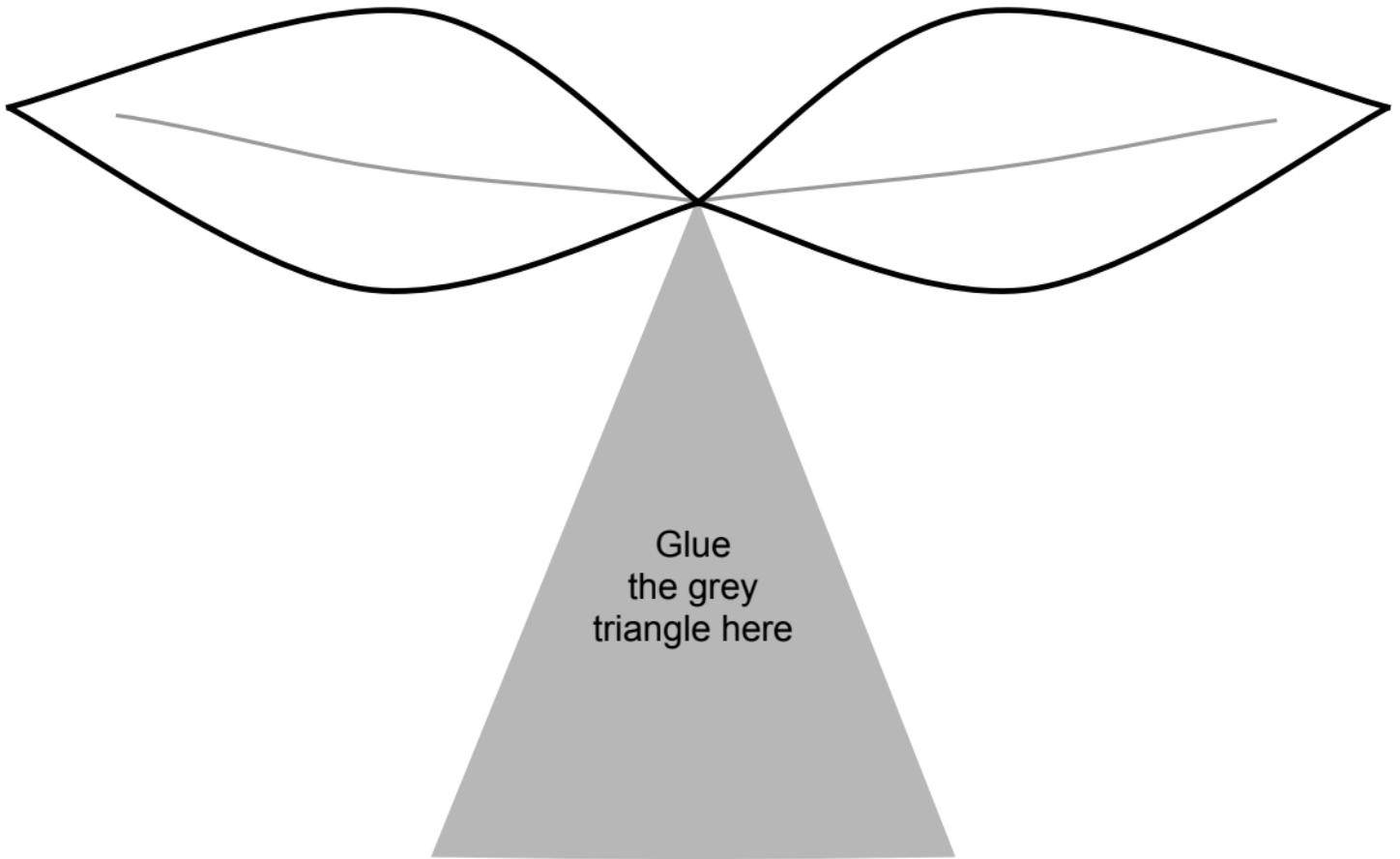
# Make a Flower







## Flower Base



Name: \_\_\_\_\_

1. Circle what pollen you see on the sticky stigma:

Pollen from  
my flower

Pollen from my  
partner's flower

Pollen from  
both flowers

2. Do you think your flower will make seeds?

Yes

No

### KEY

pollen  
duster

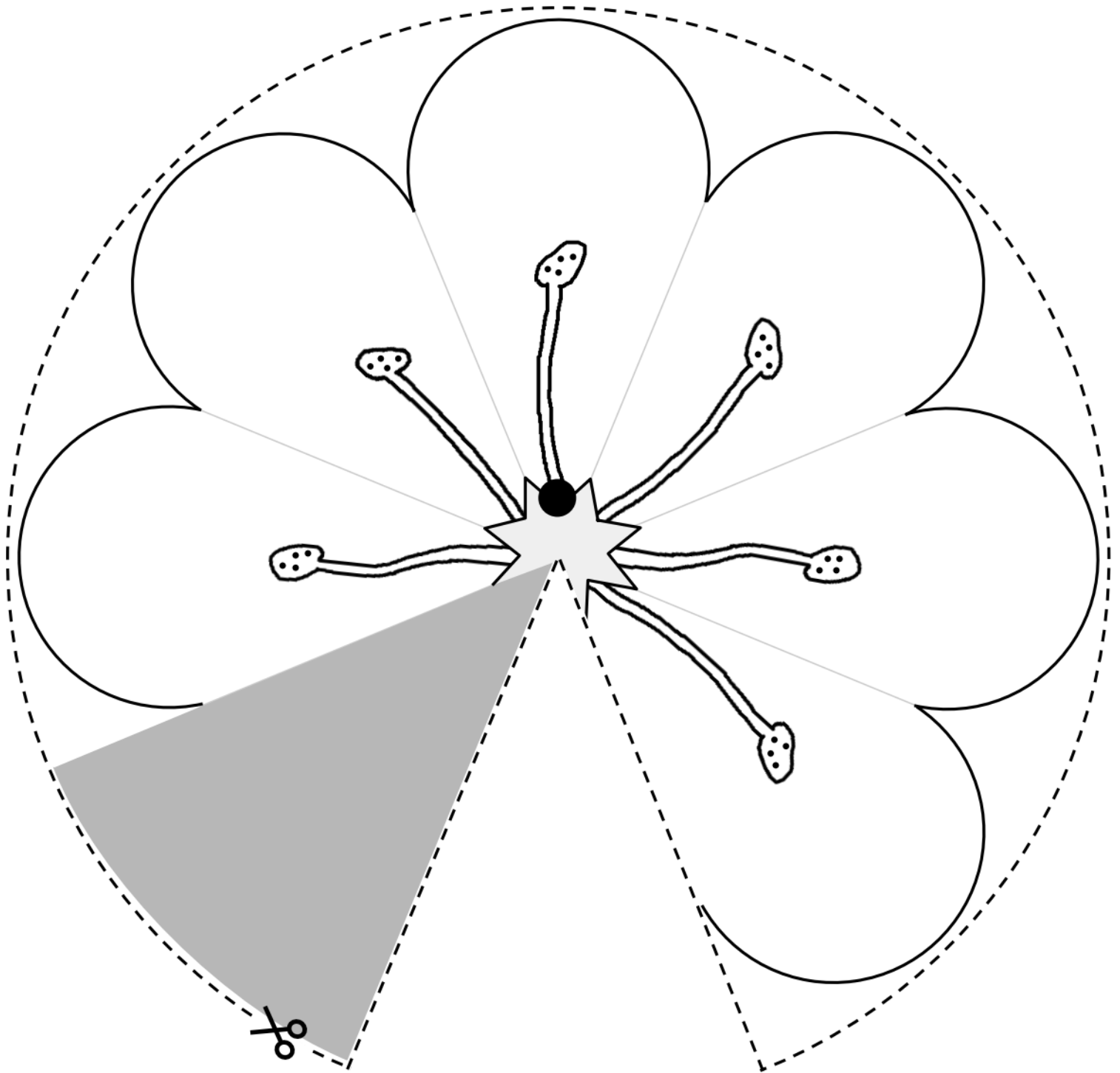


sweet  
nectar



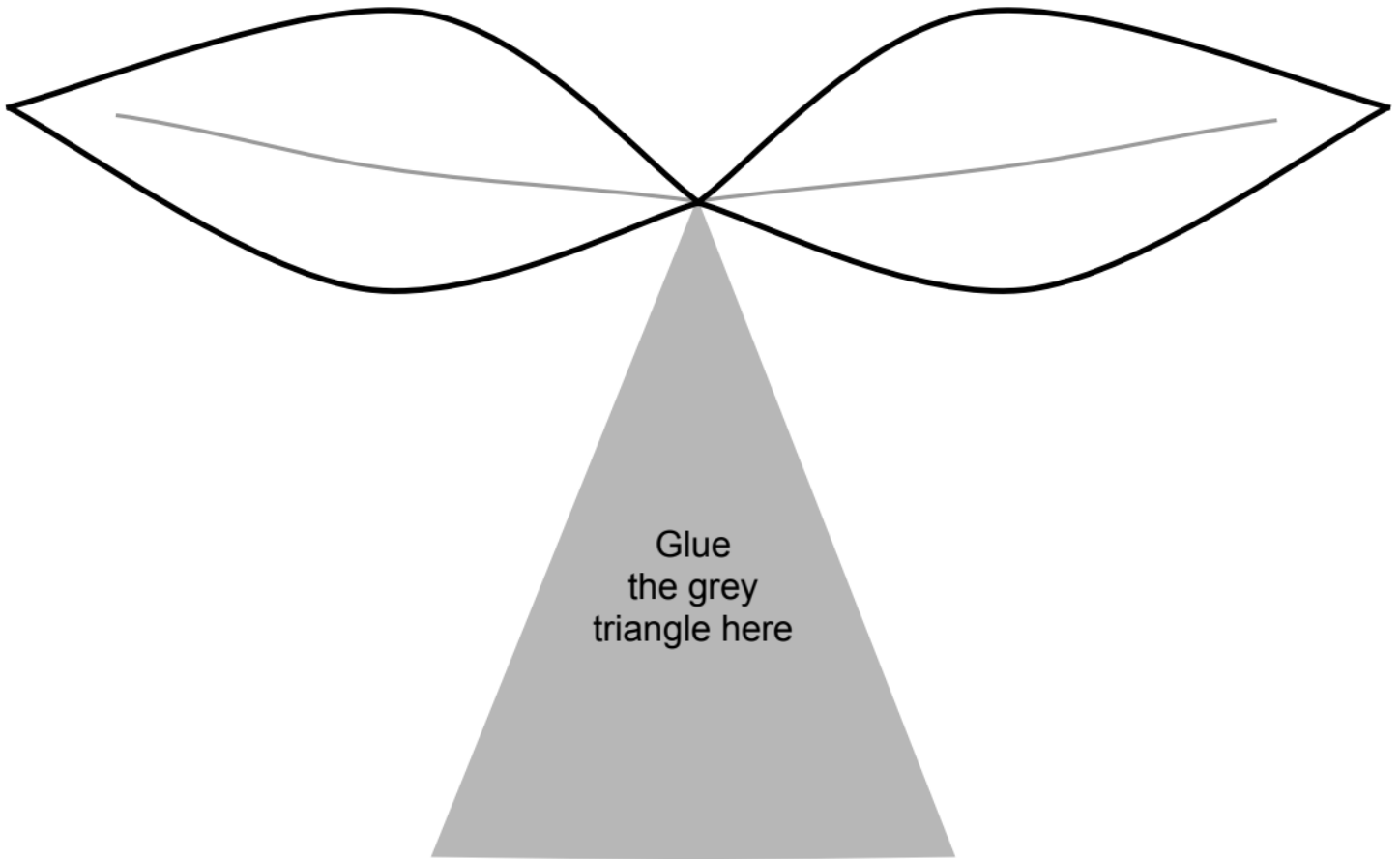


# Make a Flower





## Flower Base



Name: \_\_\_\_\_

1. Circle what pollen you see on the sticky stigma:

Pollen from  
my flower

Pollen from my  
partner's flower

Pollen from  
both flowers

2. Do you think your flower will make seeds?

Yes

No

### KEY

pollen  
duster



sweet  
nectar





# Operating Table

Put each flower part in the box with its name.

**1) Petals**

**2) Pollen**

Write your initials in  
pollen in this box.

**3) Stigma**

**4) Ovary**





# Flowers Go Bats!

by Pat Murphy

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Visit a flower garden on a bright summer day. You will see bees and butterflies flying from flower to flower. These insects carry pollen from one flower to another. Flowers need this pollen to make seeds. The flowers attract insects with sweet smells and sweet sugar water called nectar.

Visit the Arizona desert on a warm spring night, and you will see something very different. The giant Saguaro cactus grows in the Sonoran Desert. In springtime, the white flowers of this cactus open for a single night.

At night, bees and butterflies are sleeping. But bats are awake—and they like sweet nectar, too. To get nectar, bats push their heads deep into the cactus flowers. Pollen falls on the bat's hairy head. When the bat flies to another flower, it carries the pollen with it. All night long, bats fly from cactus flower to cactus flower.

By moving pollen from flower to flower, bats help the Saguaro cactus make seeds. And that's good for all the animals in the desert. Hawks perch and nest on Saguaro cactus plants. Smaller birds nest in holes in the giant cactuses' stem. Bats and birds also eat the fruit of this cactus.

The flowers of the Saguaro cactus aren't the only ones that bats visit. If you like bananas, you should thank the bats. Bananas —and more than 500 other kinds of fruit plants—count on bats to move pollen from flower to flower.

# Power of Flowers

Mystery 1: Why do plants grow flowers?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## End of Mystery Assessment

1. How do bees help flowers make seeds?

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2. If you take a flower's pollen and then put it on that same flower's stigma, will that make a seed pod grow? Why or why not?

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3. Why do bees like crawling into flowers?

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# The Power of Flowers

## Lesson 2:

### Why Do Plants Give Us Fruit?

# STUDENT RESPONSE PAGE

DRAW!

WRITE!

Questions in Video	Student Response
What do you think happened to the seeds the pear flowers should have made?	
What part of the flower turned into a pear?	
Why do you think some plants grow fruit around their seeds?  Hint: Remember plants need their seeds to move away from them.	
Do you think a tomato is a fruit or a vegetable?	

# Science Fruit or Science Vegetable?

Circle your answers for each food.

## **Radish:**

What do you think it is?	science fruit	science vegetable
Did you find seeds?	Yes, I found seeds!	No seeds here.
What did the class decide?	science fruit!	science vegetable!

## **Tomato:**

What do you think it is?	science fruit	science vegetable
Did you find seeds?	Yes, I found seeds!	No seeds here.
What did the class decide?	science fruit!	science vegetable!

## **Cucumber:**

What do you think it is?	science fruit	science vegetable
Did you find seeds?	Yes, I found seeds!	No seeds here.
What did the class decide?	science fruit!	science vegetable!

## **Potato:**

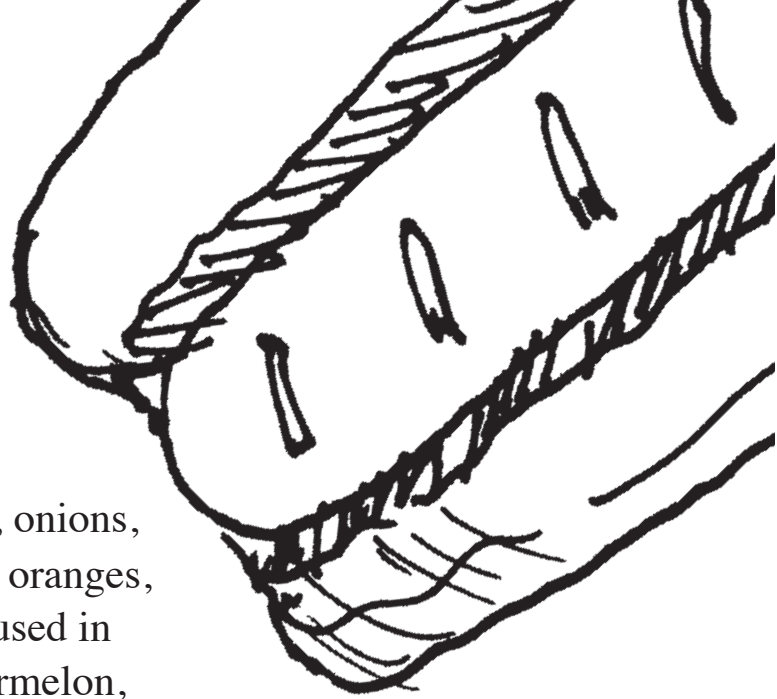
What do you think it is?	science fruit	science vegetable
Did you find seeds?	Yes, I found seeds!	No seeds here.
What did the class decide?	science fruit!	science vegetable!

## **Celery:**

What do you think it is?	science fruit	science vegetable
Did you find seeds?	Yes, I found seeds!	No seeds here.
What did the class decide?	science fruit!	science vegetable!

## ACTIVITY PAGE 2

### Bee-Free Barbecue



Some of the more common products from animal-pollinated plants include tomatoes, onions, cucumbers, lettuce, oil for frying potatoes, oranges, lemons, limes, mustard seed, cacao bean (used in making chocolate), vanilla, almonds, watermelon, and apples



#### Welcome to the Bee-Free Barbecue!

If all the animal pollinators were to become extinct, which of the foods listed below could you not have with your hamburger or hot dog?

- |   |   |
|---|---|
| <input type="checkbox"/> mustard              | <input type="checkbox"/> mayonnaise       |
| <input type="checkbox"/> lemonade             | <input type="checkbox"/> french fries     |
| <input type="checkbox"/> ketchup              | <input type="checkbox"/> onions           |
| <input type="checkbox"/> potato chips         | <input type="checkbox"/> hot fudge sundae |
| <input type="checkbox"/> pickles              | <input type="checkbox"/> tomatoes         |
| <input type="checkbox"/> strawberry milkshake | <input type="checkbox"/> apple pie        |
| <input type="checkbox"/> cheese               | <input type="checkbox"/> watermelon       |

Describe the rather dull meal you would have left.

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## **Mystery Science Fruit Salad**

Suppose you wanted to make a fruit salad. What would you buy at the grocery store?

Most people would buy apples and oranges and bananas. They might buy strawberries and peaches and watermelon—if it's the right time of year for those fruits to be in the store.

You could chop up all those fruits and mix them together. You'd get a great fruit salad, but it wouldn't be a Mystery Science Fruit Salad.

Plant scientists say that any food with seeds in it is the fruit of a plant. At Mystery Science Labs, we think like plant scientists. So when we went to the grocery store, we bought two tomatoes, a cucumber, and an avocado. Tomatoes, cucumbers, and avocados all have seeds inside.

We also bought apple cider vinegar. That's made from apples. Everyone knows that apples are fruit.

Finally, we bought olive oil. Every olive has a pit. That pit is a seed. To a plant scientist, that means an olive is a fruit.

We chopped up the tomatoes, the cucumber, and the avocado. Then we mixed the vinegar and olive oil together to make salad dressing. We put it all together to make a tasty salad.

Most people wouldn't call this a fruit salad. But if you think like a plant scientist, that's exactly what it is.



# Power of Flowers

Mystery 2: Why do plants give us fruit?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## End of Mystery Assessment

1. Why do flowers grow fruit?

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2. What part of an apple reminds you that it was once a flower?

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3. How could you tell if something is a “science fruit?”

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4. What is an example of a “science fruit” that is normally called a vegetable in the grocery store? Why do you think it’s called a vegetable in the grocery store?

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# The Power of Flowers

Lesson 3:

Why Are Some  
Apples Red and  
Some Green?

# STUDENT RESPONSE PAGE

DRAW!

WRITE!

Questions in Video	Student Response
How could you grow your own sweet apples?	
In what ways are you different from your siblings?	
How could you grow an <b>EVEN SWEETER</b> apple, using the seeds from your new apples?	
How did we get from small crab apples thousands of years ago to large red and green apples today?	



## Apple Taste Test



What is it called?	What color is it?	How sweet is it?
Granny Smith		Very Sweet Slightly Sweet Slightly Sour Very Sour
Red Delicious		Very Sweet Slightly Sweet Slightly Sour Very Sour
Golden Delicious		Very Sweet Slightly Sweet Slightly Sour Very Sour
Honeycrisp		Very Sweet Slightly Sweet Slightly Sour Very Sour

What's your favorite apple? \_\_\_\_\_

# A grape for junk food lovers - the Cotton Candy

By Los Angeles Times, adapted by Newsela staff on 08.15.13

Word Count **685**

Level **710L**



Geneticist David Cain with the Cotton Candy grape at International Fruit Genetics. Cain spearheads the Delano, California, facility, seeking varieties that pack enough sweetness to capture consumer tastes. "We're competing against candy bars and cookies," he said. Anne Cusack/Los Angeles Times/MCT

LOS ANGELES — It is not easy selling fruit to a country of junk food lovers. But a fruit that tastes like cotton candy could be very popular.

David Cain has come up with just such a grape in California.

Cain is a fruit breeder. He and other breeders take qualities from different types of grapes. They mix them up to grow new types of grapes. The new grapes can be registered with the government, or patented.

Breeders have developed grapes with extra sugar. Some say they as well be Skittles on the vine. But health scientists don't seem all that bothered about the extra sugar in some of the grapes. It takes about a hundred grapes to get the same calories as you get in a candy bar, said David Heber of UCLA.

## Thin Grapes And Fat Grapes

Cain's latest invention is called the Cotton Candy grape. It tastes like a pink ball of spun sugar. "We're competing against candy bars and cookies," he said.

The marketplace for fruit is very competitive. So farmers make money by coming up with new types of fruit that they can put a name on. They hope to come up with the next Cuties Clementine orange. They want to design the next Honeycrisp apple. Those products stand out in the crowded fruit aisle.

"People are looking for more flavor," said Mark Carroll at Gelson's Markets. The store will carry the Cotton Candy grape. "Once they get hooked, they want more no matter what."

California companies sell \$1.1 billion in grapes for eating each year. Cain's company is in the heart of that business. It specializes in bold flavors and unusual shapes. Purple Funny Fingers are long and thin like chili peppers. A grape named Sweet Sapphire comes as round and fat as D batteries. Like the Cotton Candy, the special grapes are patented. Farmers pay to grow them.

Ordinary grapes can cost as little as 88 cents per pound. The Cotton Candy could cost around \$6 a pound. Prices would come down if enough farmers grow the grape.

### **A Fruit Called Pluot**

A fruit called the pluot came out in the 1980s. It was part plum and part apricot. The pluot helped launch designer fruits in the United States. It is a crispy stone fruit that took 20 years to develop. It was a big hit. So farmers started spending money on breeding.

California is now putting out other sweet inventions. Try a peacharine. It's a peach and nectarine combination. How about cherums? Those are made by mixing cherries and plums.

Fruit breeders use methods that are hundreds of years old. It involves a lot of waiting. Then replanting. Then repeating the process. It can take years to get the fruit right.

"It's a bit like fishing. You never know when you're going to get the big one," said Cain.

Cain started his company, International Fruit Genetics, in 2001. A few months later, he tasted a grape that grabbed his attention. Researchers from the University of Arkansas were showing off a purple Concord grape. The fruit didn't look like much. But the cotton candy flavor made Cain think of a county fair.

### **"A Lot Of Spitting"**

On a recent weekday, Cain showed why he spends half his time outdoors. Rows and rows of vines needed to be inspected in search of the next big thing. Cain methodically tasted his berries. He decides what to keep and what to toss.

There are 300 kinds of grapes to taste on each row. So swallowing the fruit is out of the question. "I've learned to do a lot of spitting," Cain said.

The Cotton Candy was patented in 2010. A Bakersfield grower is set to harvest the first large crop in August. Cain doesn't like to fuss over such things. But the Cotton Candy has him excited. He thinks its flavor has a chance to hook shoppers like nothing before.



“It’s going to be introduced slowly,” Cain said. “What we’re hoping is it will do for grapes what all these new varieties have done for fruit like apples.”

## Quiz

1 Why are health scientists okay with breeders putting more sugar in their grapes?

- (A) The grapes contain a lot less calories than a candy bar.
- (B) A candy bar contains 100 times more sugar than Cain's grapes.
- (C) Cain's grapes and candy bars have the same amount of calories.
- (D) Health scientists want people to eat less candy and more fruit.

2 Read the sentences from the article.

*It involves a lot of waiting. Then replanting. Then repeating the process. It can take years to get the fruit right.*

Which sentence from the article shows that the above statement is true?

- (A) It is a crispy stone fruit that took 20 years to develop.
- (B) Fruit breeders use methods that are hundreds of years old.
- (C) Cain started his company, International Fruit Genetics, in 2001.
- (D) "It's going to be introduced slowly," Cain said.

3 Read the sentences from the article.

*It is not easy selling fruit to a country of junk food lovers.*

The reader can guess that it is hard to sell fruit to junk food lovers because:

- (A) People would rather eat cookies and candies than grapes.
- (B) It costs more money to buy fruits than to buy junk food.
- (C) Marketplaces do not sell as much fruits as cookies and candies.
- (D) Fruit has lesser calories than candy bars and other junk food.

4 Select the paragraph from the article that compares the cost of ordinary grapes to the Cotton Candy grapes.

# Power of Flowers

Mystery 3: Why are some apples red  
and some green?

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## End of Mystery Assessment

1. How are grocery store apples different than wild apples (crab apples)?

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2. How have humans made sweeter apples?

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3. Just for fun: If you were to create your own apple variety, what would you select for other than size, sweetness, and color?

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# The Power of Flowers

Lesson 4:  
How Could You  
Make the  
Biggest Fruit in  
the World?

# STUDENT RESPONSE PAGE

DRAW!

WRITE!

Questions in Video	Student Response
If you could make a giant version of any fruit or vegetable, which one would you do?	
What other traits would you select for? (Remember, traits are things like size, shape, color, flavor, and so on.)	
Before we start the activity... take a quick guess! Are there any fruits or vegetables that you think might be varieties of the same thing?	

Which fruits are related? Why do you think that?

Which fruits are related? Why do you think that?

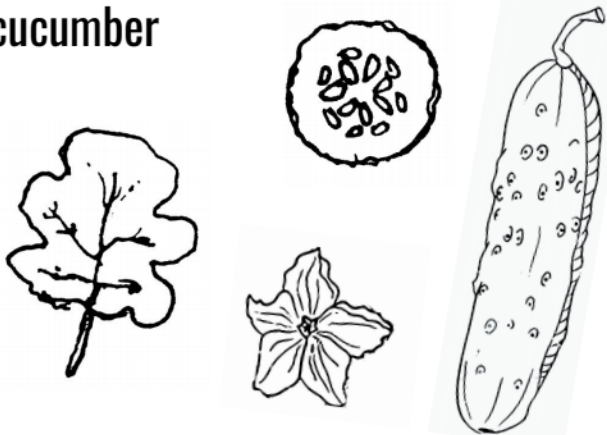
What fruits did you group together? Why did you put those together?

Did you find anything that surprised you?

# Fruit Cards

Sort these cards into 5 groups.

cucumber



peach



cherry



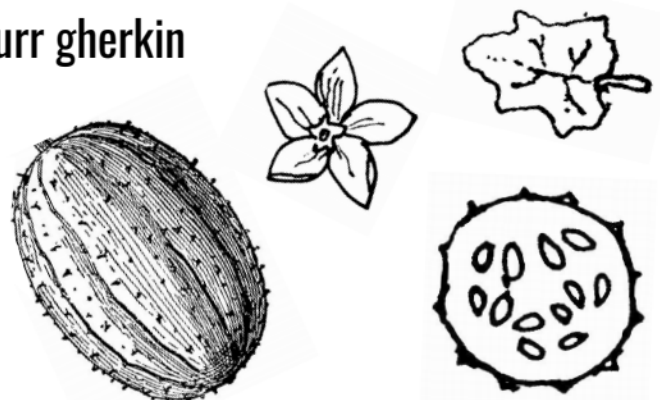
orange



pumpkin



burr gherkin



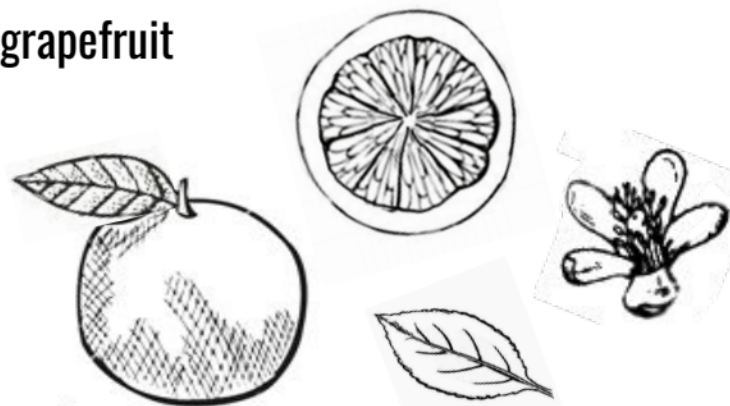




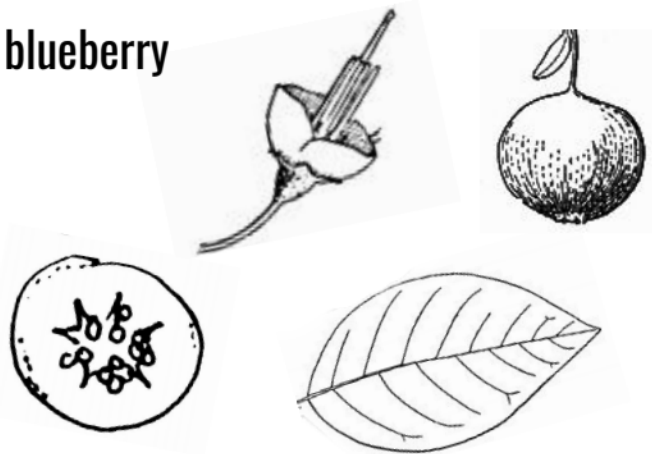
plum



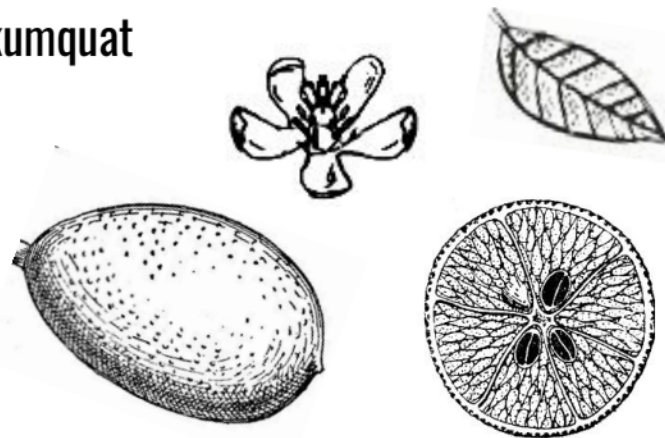
grapefruit



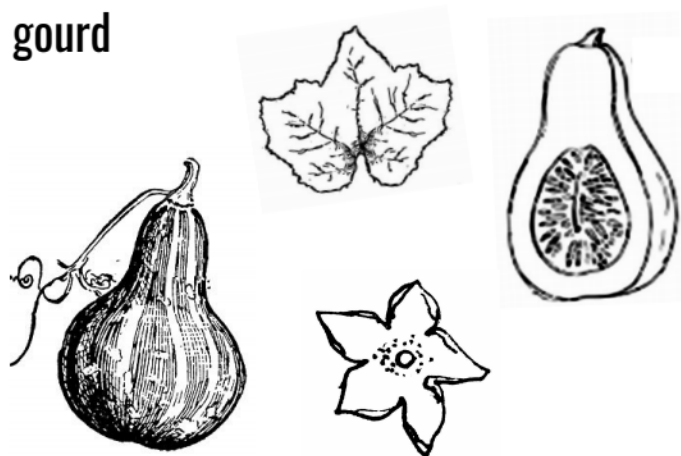
blueberry



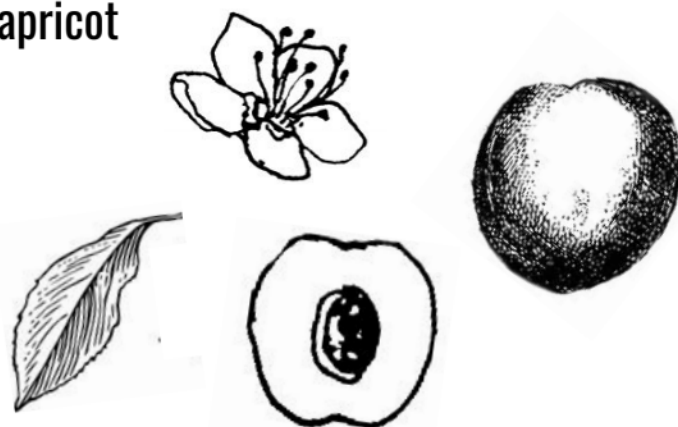
kumquat



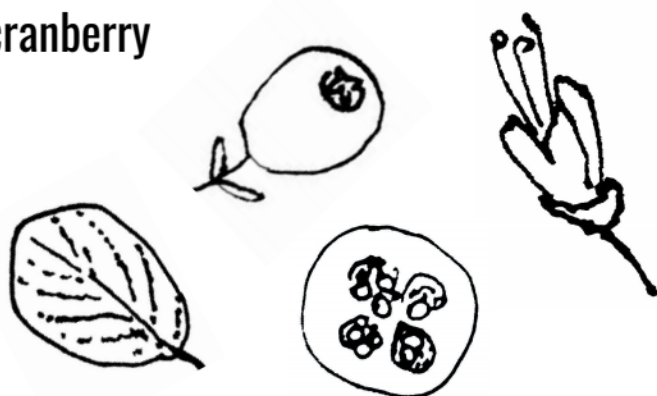
gourd



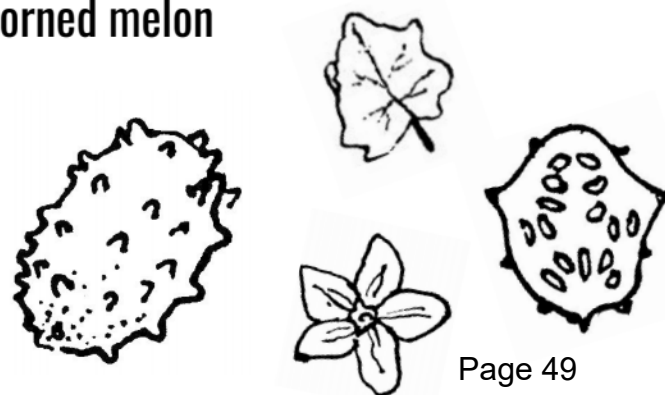
apricot



cranberry



horned melon





# Odd One Out

Name: \_\_\_\_\_

## Round 1

1. Circle the 2 you think are related by looking at the outside: Cherry Plum Grape
2. Circle the 2 you think are related by looking at the inside, the flowers, and the leaves: Cherry Plum Grape
3. What evidence shows you these 2 fruits are related? List three traits they share:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Round 2

1. Circle the 2 you think are related by looking at the outside: Cucumber Lemon Dosakai
2. Circle the 2 you think are related by looking at the inside, the flowers, and the leaves: Cucumber Lemon Dosakai
3. What evidence shows you these 2 fruits are related? List three traits they share:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Round 3

1. Circle the 2 you think are related by looking at the outside: Tomato Watermelon Zebra Fruit
2. Circle the 2 you think are related by looking at the inside, the flowers, and the leaves: Tomato Watermelon Zebra Fruit
3. What evidence shows you these 2 fruits are related? List three traits they share:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

# Pumpkin Time!

## From Seed to Pumpkin

**This is how pumpkins grow.**

Fall is here. It's time to pick pumpkins. Read the steps to learn the life cycle of a pumpkin.

### (1) Seed



Kate Eisemann for Weekly Reader

Pumpkins begin as seeds. The seeds are planted in the ground in May and June.

P 52

## (2) Sprout

After about 10 days, a sprout grows. A sprout is a tiny plant.

## (3) Vine



Sharon Meredith/Shutterstock

The sprout grows into a vine. A vine is a long stem. It can grow more than 20 feet long!

## (4) Blossom

P. 53



Arlete Shaeffer/Weekly Reader

Soon, yellow flowers called **blossoms** grow. At the bottom of some blossoms is a tiny pumpkin.

## (5) Young Pumpkin



John Kaprielian/Photo Researchers, Inc.

P.54

Tiny green pumpkins start to grow. They grow bigger and bigger.

## (6) Full-Grown Pumpkin



Mark Edward Atkinson/Photo Library

By October, it's time to pick big, orange pumpkins. The seeds inside can be used to grow more pumpkins.

P. 55



Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What is the first step in the life cycle of a pumpkin?
2. What color are pumpkins when they start to grow?
3. If seeds are planted in September, will they be full-grown pumpkins by October? Why or why not?
4. What is the main idea of the passage?
5. The question below is an incomplete sentence. Choose the word that best completes the sentence.

A full-grown pumpkin has seeds inside it, \_\_\_\_\_ it can be used to grow more pumpkins.

- A. because
- B. but
- C. so

P 56

# Magic Tomatoes

by Edward I. Maxwell



Luke's father is a farmer. To be more precise, his dad is a fruit-and-vegetable farmer. Instead of cows, pigs, sheep, and horses, Luke's house is surrounded by corn, squash, lettuce, and tomatoes.

Luke does not mind that there are no animals. In fact, he likes living on a fruit-and-vegetable farm much better. If you asked Luke, he would say that a fruit-and-vegetable farm is magical.

"What do you mean, magical?" Luke's friend Tom asked one day.

"Well, it's like this," said Luke. "My dad casts a spell, and soon enough the fruits and vegetables appear where there used to be bare dirt!"

Now, Luke knows that this is not really *magic*. But all the same, he feels it is pretty special that his dad is able to create something as grand as a corn field where there used to be nothing. Sometimes, Luke sets his alarm clock, so he can wake up before the sunrise, too. He eats cereal with his dad and asks him what spells he is going to cast.

P. 57

"I'm planting tomatoes today, son," Luke's father explained. "Tomatoes ripen best in very hot summer heat,

so I need to plant the seeds early in spring. That way there will be tall, healthy tomato vines once August arrives."

"How do you make sure the vines grow tall and healthy?" Luke asked.

"They grow strong when you give them care and attention and have a little bit of hope," his father laughed.

"Can I help?" Luke begged.

"Of course!" exclaimed his father.

So on days Luke did not have school, he helped his father, and Luke learned more about his dad's magical work.

Luke learned that a tomato plant indeed needs a lot of care. He spent one whole day in the early June sun, sinking wooden stakes into the ground by young tomato sprouts. After the tomato vines had grown a little taller, Luke tied them to the stakes so that they would not topple over and lose their special fruit.

"The tomatoes sure need a lot of attention!" Luke exclaimed one late afternoon. He had been double and triple tying the vines, because the weather forecaster had predicted wind and rain for that night. Luke's father wanted to make sure his tomatoes did not get blown over in the storm.

"Most worthwhile things do require a lot of attention, Luke," replied his father with a smile.

"What do you mean?" asked Luke.

"Well," said his father, standing up straight and wiping the sweat from his forehead. "We should pay close attention to things that make our lives better."

"That is why you pay attention to Mom?" asked Luke.

"Yes," replied his father. "I pay close attention to you and Mom, because you both make my life better. You both make me very happy."

The rest of Luke's work that day went by a lot quicker. Taking care of the tomato plants, Luke imagined he was taking care of his mom and dad. With a little bit of family magic and a lot of attention, Luke was certain these would be the most beautiful tomatoes he had ever seen once August arrived.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What kind of farmer is Luke's dad?

- A. a dairy farmer
- B. a grain farmer
- C. a fruit-and-vegetable farmer
- D. a cow-and-chicken farmer

2. One effect in this story is that Luke learns about tomatoes and farming. What is the cause?

- A. Luke's house is surrounded by lettuce.
- B. Luke helps his father grow tomatoes.
- C. Luke explains what he means by "magical" to his friend Tom.
- D. Luke sometimes sets his alarm clock so that he can wake up before sunrise.

3. Luke's father pays a lot of attention to his son.

What evidence from the story supports this statement?

- A. Luke's father is a fruit-and-vegetable farmer.
- B. Luke's father says that most worthwhile things require a lot of attention.
- C. Luke's father pays a lot of attention to Luke's mother.
- D. Luke's father listens to his son's questions and answers them.

4. What is Luke's opinion of the work his father does?

- A. Luke thinks his father's work is special and interesting.
- B. Luke thinks his father's work is a waste of time and money.
- C. Luke thinks his father's work is strange and confusing.
- D. Luke thinks his father's work is evil and dangerous.

5. What is a theme of this story?

- A. the benefits of exercise
- B. the effects of being lazy
- C. giving care and attention to worthwhile things
- D. making friends with people who are different from you

P. 59

6. Read the following sentences: "Luke's father is a farmer. **To be more precise**, his dad is a fruit-and-vegetable farmer."

Why does the author start the second sentence with the words, "**To be more precise**"?

- A. to make readers look up a word
- B. to make sure readers are paying attention
- C. to create a clear picture in readers' minds
- D. to let readers know that more detail is coming

7. Choose the answer that best completes the sentence below.

Luke asks about his father's work on the farm; \_\_\_\_\_ he starts helping his father with work on the farm.

- A. before
- B. then
- C. for example
- D. on the contrary

8. If you asked Luke, how would he describe a fruit-and-vegetable farm?

9. Why is Luke certain that the tomato plants he is working with will become "the most beautiful tomatoes he had ever seen" once August arrives?

10. Based on the story, is farming magical? Explain why or why not, using evidence from the passage.

P 60

# Power of Flowers

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Mystery 4: How could you make the biggest  
fruit in the world?

## End of Mystery Assessment

1. Why do you think it took plant growers such a long time to create the roses sold in flower shops today?

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2. "No two babies of a parent have exactly the same traits." How did this fact make it possible to grow giant pumpkins?

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3. How can you tell whether two different fruits are just varieties of one kind of fruit, or if they're completely different fruits?

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4. Just for fun: If you were going to use selection in order to create a giant fruit, which fruit would you like to make giant?

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# The Power of Flowers

Performance Task:  
Are the Stinky  
Seeds and Dung  
Beetles Good  
for Each Other?



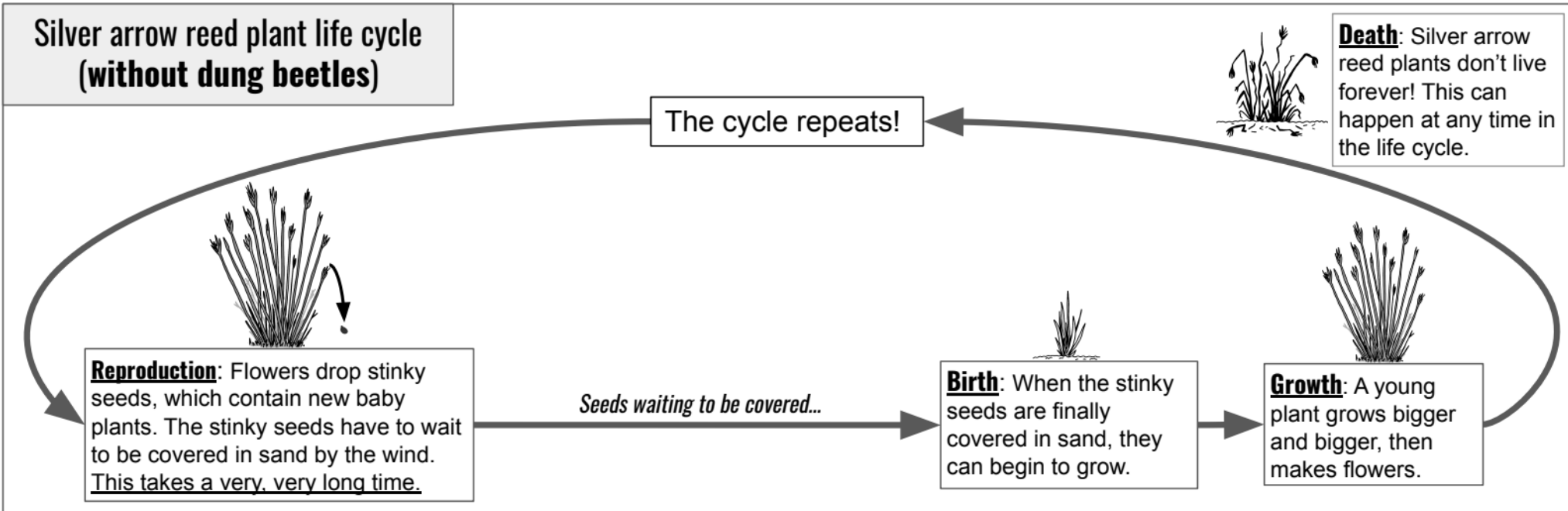
# STUDENT RESPONSE PAGE

DRAW!

WRITE!

# Stinky Life Cycles

## Silver arrow reed plant life cycle (without dung beetles)

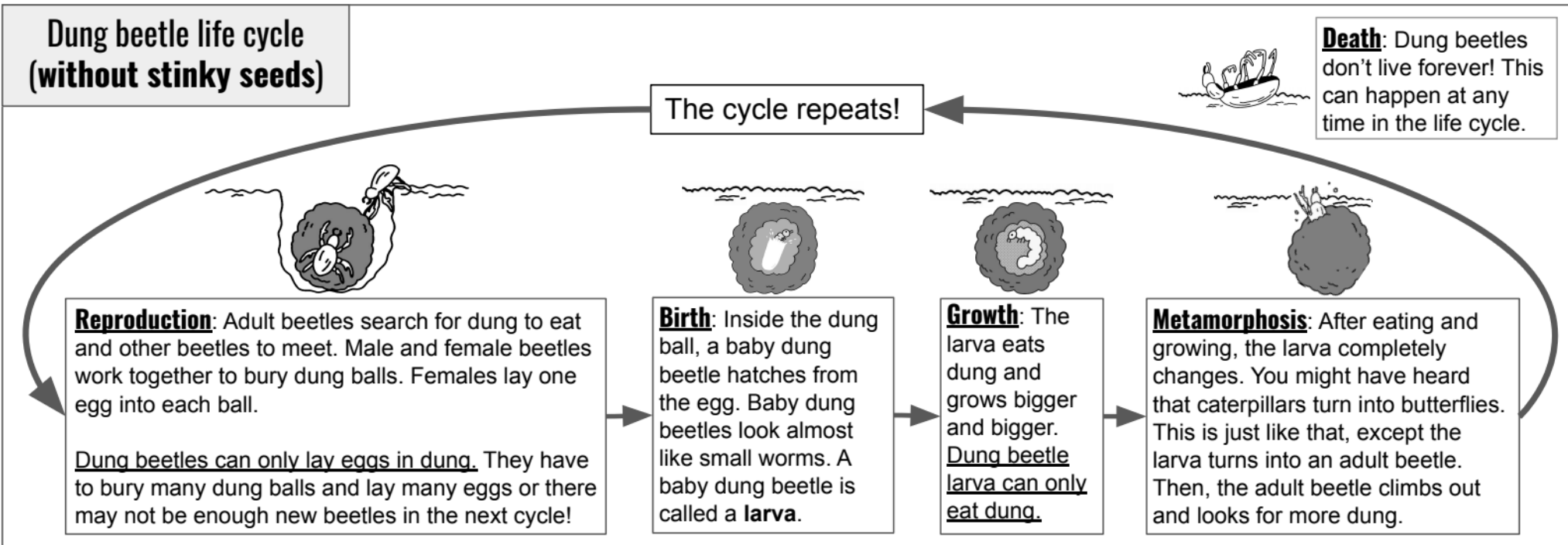


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## Dung beetle life cycle (without stinky seeds)



## Power of Flowers - Stinky Life Cycles

### Performance Task

Name(s): \_\_\_\_\_

**Directions:** Study the silver arrow reed and dung beetle life cycles. Then answer these questions.

1. Describe three **differences** between the two life cycles.

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2. Which stages are the **same** in **both** life cycles? All living things go through these four stages. Some also go through more stages, but none go through fewer!

_____	_____
_____	_____

3. Which stage can happen any time in the life cycles? \_\_\_\_\_

4. There is something that slows the life cycle of the silver arrow reed plant down. What is it? (*Hint: Something takes a very, very long time.*)

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5. The dung beetle needs dung to complete its life cycle. What does the dung beetle use dung for? In which stages does it use it? Describe two examples.

In the \_\_\_\_\_ stage, dung beetles use dung to

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and in the \_\_\_\_\_ stage, dung beetles use dung to

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## Power of Flowers - Stinky Life Cycles

### Performance Task

Name(s): \_\_\_\_\_

5. Imagine that the dung beetles bury new silver arrow reed seeds as soon as they drop from the flowers. What would the silver arrow reed life cycle look like? Draw your answer in the box below. Then, explain your answer.

Silver arrow reed plant life cycle  
(with dung beetles)

In what way(s) is this new life cycle different from the original? \_\_\_\_\_

\_\_\_\_\_

Think back to the original silver arrow reed life cycle. Is this new life cycle better or worse for the plant? Why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Power of Flowers - Stinky Life Cycles

### Performance Task

Name(s): \_\_\_\_\_

6. Imagine the dung beetles get **very** confused and spend most of their lives burying seeds and only bury a few dung balls. What would the dung beetle life cycle look like? Draw your answer in the box below. Then, explain your answer.

Dung beetle life cycle  
(with stinky seeds)

In what way(s) is this new life cycle different from the original? \_\_\_\_\_

\_\_\_\_\_

Think back to the original dung beetle life cycle. Is this new life cycle better or worse for the beetles? Why? \_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_