

4th Grade: Science and Social Studies Work (2nd packets, April 17)

Here are some assignments you can do at home!

If you complete these daily assignments, you can earn money to spend at the "Williamson Mart"!

Directions:

1. Do one daily assignment everyday. It can be a science or social studies assignment.
2. Complete the activity/worksheet.
3. **You can turn your work into your bus driver OR keep it and turn it into Mrs. W.**
4. You will earn money for every daily reading you have done.
5. The activity page has to be completed to earn the money!

Keep working hard on your work!

Keep earning your money to shop!

Assignments: You can do these in ANY order!

Day 1: (Colored page) Social Studies: Natural Features May

Day 2: (Colored page) Social Studies: My Favorite State Park (plus vocab. picture page)

Day 3: (Colored page) Science: Tornado in a Bottle

Days 4-6: Hurricane Packet: Reading, Gameboard, Recording Sheets

Days 7-8: Science: Frog report! Reading, Writing, Research

Day 9: Read the "Science Spin" Scholastic News "The Future of Meat?"

*If you have time, continue on STEM packet experiments! (From 1st packet)

*Continue on your internet/websites regarding Lewis and Clark

*Do any research about "Territories and Treaties" of early Washington State

Activity/Worksheet:

Complete the activities on that page #1-4

Complete the activities on that page #1-4 (Make a brochure...)

Try to make a tornado with soda bottles!

Complete the packet about Hurricanes:reading/gameboard

Complete ANY science report ideas from pg. 6 (Make a book, write about

Read articles and complete the back page!

Natural Features Map

1. Draw a map of your state. Use an atlas as a resource.
2. Find four natural features in your state. These natural features could include:
 - mountains
 - deserts
 - rivers
 - prairies
 - lakes
3. Draw and label four natural features on your map.
4. Draw a star where the state capital is located. Label the state capital.



Talk Together

Share your map. Talk about which natural feature you would most like to see. Give your reasons.





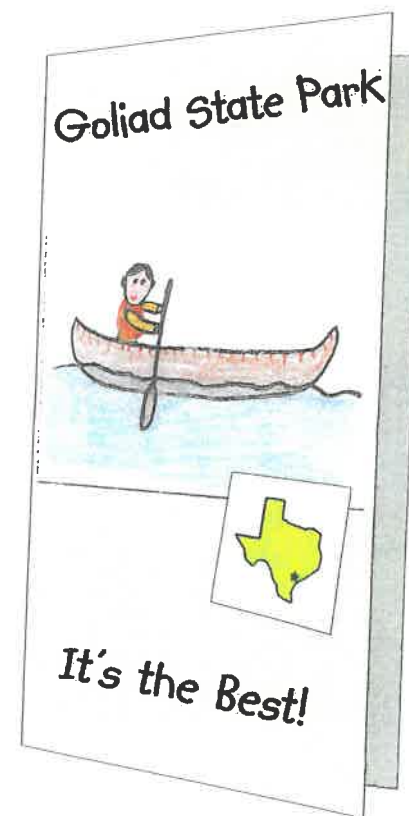
My Favorite State Park

1. Look at the **Language Builder Picture Cards**.
2. Find out about a state park in your area. What types of activities are available there?
3. Create a brochure about the state park you chose.
4. Draw pictures or cut out images from magazines and newspapers to use in your brochure.



Talk Together

Share your brochure with the class. Talk about why you chose the park.



To find a state park in your area, go to NGReach.com.

camping



dam



windmill



Wind is an energy resource.

hiking



Use this page for "Social Studies, My favorite State Park" activity



Tornado in a Bottle

Look at the **Language Builder Picture Card** of a tornado.



Fill one 2-liter soda bottle $\frac{3}{4}$ full of water. Leave the other bottle empty. Screw on the caps with small holes.

Line up the holes in the caps. Tape the bottles together. Make sure it's tight.

Flip the bottles up. Grip the bottles where they join. Swirl the bottles. Observe.

Repeat, using caps with bigger holes.



tornado



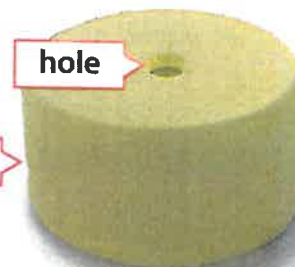
Talk Together

Share your observations. How did the size of the hole affect the tornado?



bottle cap

hole



Text I

Hurricanes

We have all heard on the news about devastating hurricanes that have destroyed the lives of many. How do these huge storms form, and what do we need to know about them?

Most people don't realize it, but hurricanes actually help the planet. When the hurricanes move, they move heat from the warmer tropical places to areas with cooler temperatures. In order to do this, hurricanes usually form between 5 to 15 degrees from the equator. They then travel across the warm oceans of the world, such as the Atlantic, up to higher latitudes. Most people also don't realize that hurricanes have a season, much like football or baseball season. Hurricane season in the North Atlantic is from June 1 to November 30, with most of the hurricanes happening during the fall.

A storm must go through a series of stages before being classified as a hurricane. When it is just a thunderstorm with light flow or movement, it is called a tropical disturbance. When the wind speed reaches between 20 and 34 knots (the unit used to measure the speed of a hurricane), it is known as a tropical depression. It reaches the classification of a tropical storm when the wind speed reaches between 35 and 64 knots. Finally, a storm is considered a hurricane when the wind speed is greater than 64 knots.

Hurricanes can be up to 600 miles across and have winds of 75 to 200 miles per hour. They can last over a week and move 10-20 miles per hour over the open ocean. The center of the storm is called the eye and is the calmest part. It has only light winds and fair weather. Interestingly, the storm winds blow counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. This means that the winds move in opposite directions depending on the hemisphere in which the hurricane is located.

The most dangerous part of a hurricane is the storm surge. A storm surge occurs when the sea level rises. A storm surge occurs when water is pushed toward the shore. Storm surges can cause extreme flooding of coastal areas, causing vast amounts of damage to property and harming people who live in those areas.

Forecasters use computer models to predict the amount of storm surge that will affect a coastal area. A model called SLOSH takes into account a storm's strength, its path, and the shape of the land. It then calculates how much storm surge a hurricane will probably cause. This allows the people who live in that area to evacuate the area before the storm hits.

Hurricanes are fascinating storms to study, but they can be very deadly and cause vast amounts of damage to affected areas.

Hurricanes vs. Tornadoes

Many people use the terms "hurricane" and "tornado" without knowing the differences between these two weather words.

A hurricane is a type of tropical cyclone with winds that are greater than 74 miles per hour. The winds are accompanied by rain, thunder, and lightning. Hurricanes are found near warm waters in the Atlantic and Pacific Oceans. The center of a hurricane is known as the "eye" and is warmer than its surrounding areas. The eye is surrounded by strong winds and rain. Hurricane season officially begins in June and peaks from the middle of August to late October in the Atlantic Ocean. A hurricane's peak is the time frame when hurricanes occur the most frequently.

The Saffir-Simpson Hurricane Wind Scale classifies hurricanes into five categories based on the wind speeds. Category 1 hurricanes cause slight damage with wind speeds of 74-95 miles per hour (mph), and Category 2 hurricanes cause moderate damage with wind speeds varying from 96-110 mph. On the more severe side, Category 3 hurricanes can cause extensive damage with wind speeds of 111-130 mph, Category 4 hurricane cause extreme damage with wind speeds of 131-155 mph, and Category 5 hurricanes have catastrophic damage with wind speeds of over 155 miles per hour.

A tornado is a funnel-like storm of strong winds that rotate violently. In the same way that hurricane wind speeds vary, the wind speeds of tornadoes range from 40 mph to 110 mph. In extreme cases, tornadoes have also reached speeds of 300 mph. Tornadoes have been observed on all continents, except for Antarctica, with a large amount being spotted in the United States.

Tornadoes come in many different shapes and sizes. Some tornadoes look like big funnels that are low in height. Some tornadoes are smaller clouds of dirt that are so small and close to the ground that they are not always recognizable as tornadoes. Some tornadoes form twisted and rope-like shapes that are more narrow. Tornadoes also vary in color. The color of a tornado can be contributed to the location of the sun, the type of air formed around the tornado, or the type of ground the tornado passes over. The tornado may pick up the soil or dirt and take on that color.

Similar to hurricanes, the intensity of tornadoes can also vary. The scales used for rating the strength of tornadoes is called the Fujita (F), Enhanced Fujita (EF), and TORRO (T) Scale. The range varies from F0, EF0, or T0 for minimal damage (damage to trees but not buildings) up to F5, EF5, or T11 for large amounts of significant damage.

Although hurricanes and tornadoes share similar characteristics, the storms do vary greatly.

You ace your report on hurricanes. Roll again.

What determines the color of a tornado?

Text 2

Why are storm surges caused by hurricanes so dangerous?

Text 1

Which text provides information about the categories of hurricanes?

Both Texts

Integrate information from both texts to determine hurricane season and the peak time for hurricanes.

Both Texts

An F0 tornado hits your town. Go back one space.

Compare and contrast the overall text structures of the texts.

Both Texts

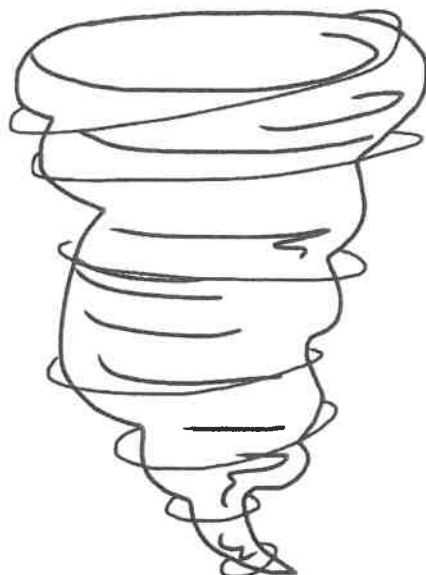
Determine the main idea of paragraph 3.

Text 1

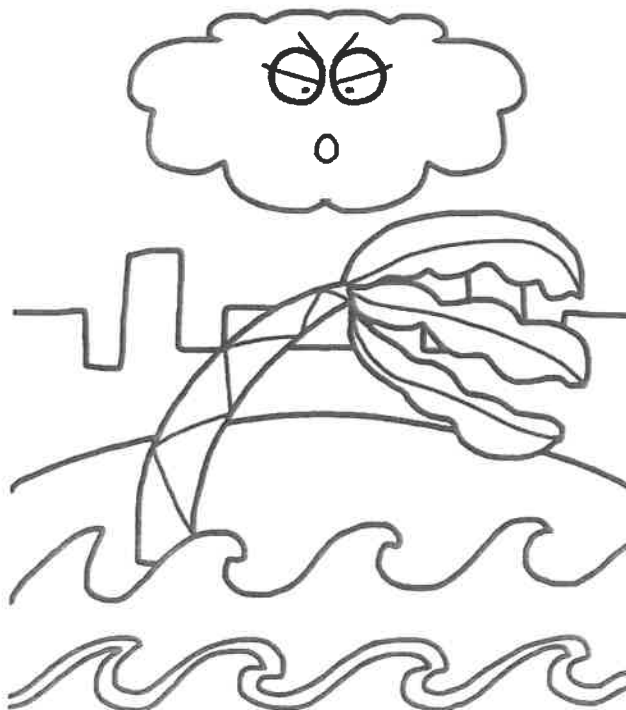
Determine the meaning of "accompanied" as used in paragraph 2.

Text 2

Start



Directions: Roll a dice, and move that many places. Use "Hurricanes" and "Hurricanes vs. Tornadoes" to answer the questions.



Determine the main idea of paragraph 6.

Text 2

How is the focus of each passage similar and different?

Both Texts

You and a friend read a book about tornadoes. Switch places with another player.

On which continent have tornadoes not been spotted?

Text 2

Integrate information from both texts to describe the "eye" of a hurricane.

Both Texts

Finish

Recording Sheet

1 of 2

Name: _____ Date: _____

Question	Answer
Determine the meaning of "accompanied" as used in paragraph 2.	
Determine the main idea of paragraph 3.	
Compare and contrast the overall text structures of the texts.	
Integrate information from both texts to determine hurricane season and the peak time for hurricanes.	
What determines the color of a tornado?	

Recording Sheet

2 of 2

Name: _____ Date: _____

Question	Answer
Why are storm surges caused by hurricanes so dangerous?	
Which text provides information about the categories of hurricanes?	
Determine the main idea of paragraph 6.	
How is the focus of each passage similar and different?	
On which continent have tornadoes not been spotted?	
Integrate information from both texts to describe the "eye" of a hurricane.	

Simple Science Report

FROG

Provide books and other materials about frogs for students reporting on this animal. (You may need to read these to younger students.) Discuss the information they have learned, then assign a writing task.

Frogs by Peter Murray; Child's World, 1993
From Tadpole to Frog by Wendy Pfeffer; Harper Collins, 1994
A Frog's Body by Joanna Cole; Morrow Junior Books, 1980

Discussion Starters

- How does a frog catch its food?
- What does a frog eat?
- Why are eyes on top of the head helpful to the frog?
- How many different ways can a frog move?
- Can you describe the life cycle of a frog?

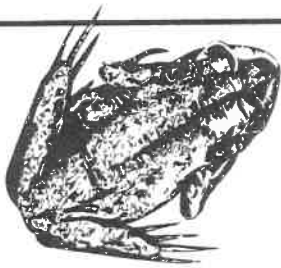
Skeleton Discussion Starter

Look at the difference in the size of the bones in the front legs and the back legs of a frog. Why do you think this difference is necessary?

Writing Ideas

1. A Report about Frogs
 - a. Tell what a frog looks like.
 - b. Tell how a frog moves.
 - c. Tell what frogs eat.
 - d. Tell how frogs catch their food.
2. Describe how frogs have adapted to life in the water.
3. Write about the life cycle of a frog.
4. Write a story about a frog.

The Frog Who Forgot How to Hop
How to Catch a Frog
If I Were a Frog



Frogs

Frogs are amphibians. They live very near or in the water. Frogs lay clumps of jelly-like eggs in the water. The tadpoles that hatch out of these eggs do not look like frogs. They are all head and tail and breathe with gills. As time goes by the tadpole grows legs and lungs and the tail disappears.

A frog has big, round eyes placed on the very top of its head. The frog can peek out of the water without sticking its whole head above water. This helps keep the frog safe from hungry enemies.

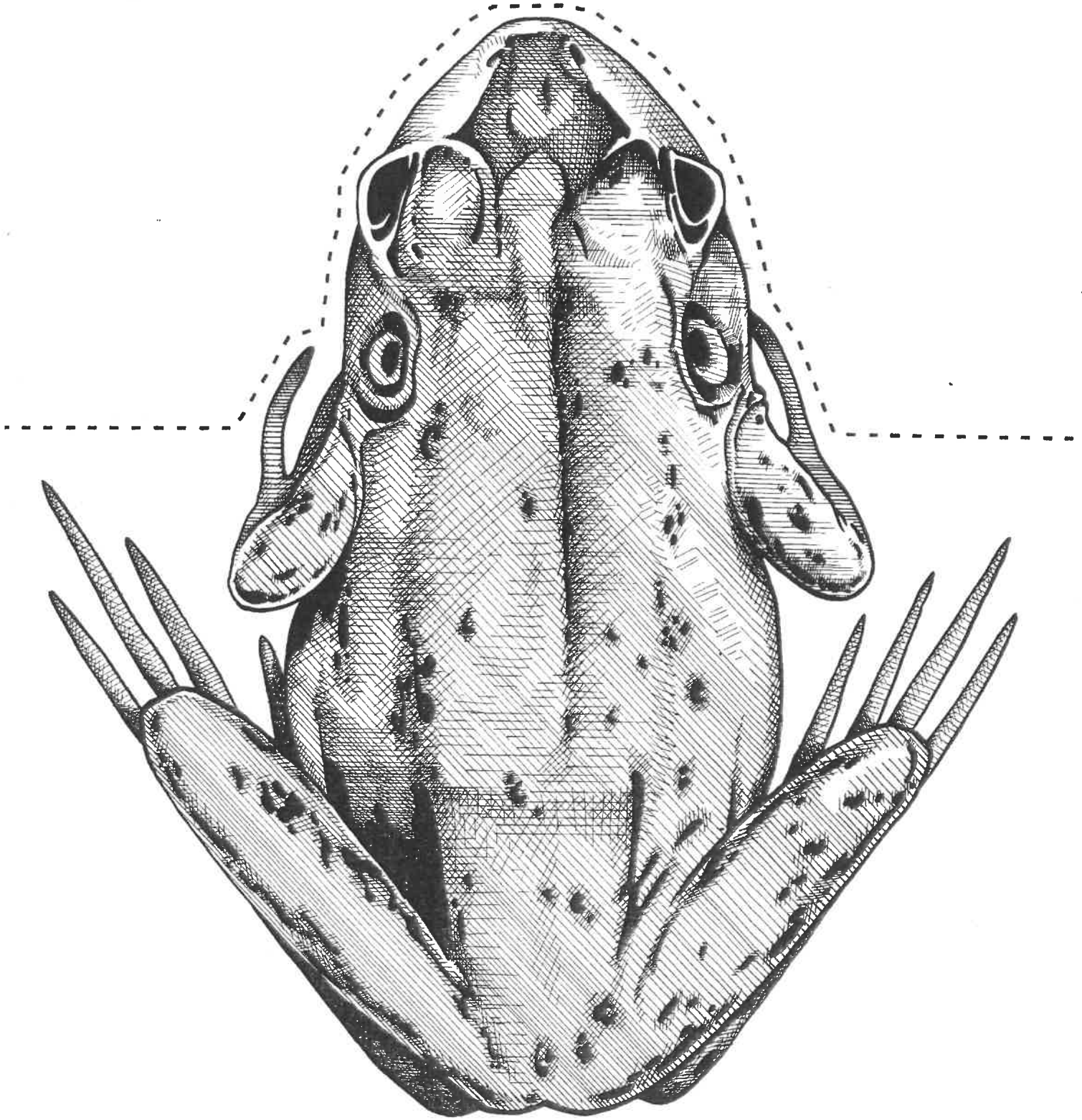
A frog has four legs. Its back legs are large and strong. This makes the frog a great jumper. Its back feet are like flippers. This makes the frog a strong swimmer. The front legs on a frog are smaller than the back legs. The frog rests its front feet on the ground when it sits. Sometimes it uses the front feet like hands to push food into its mouth.

A frog sits and waits for its dinner to fly or crawl by. When an insect, snail, worm, small fish, or small snake gets too close to a hungry frog, it had better look out! The frog's long, sticky tongue reaches out and grabs the tasty creature. A frog's tongue is attached to the lower front of a frog's mouth. A frog has very tiny teeth in its upper jaw, but they are just used to help grip food so it doesn't escape.

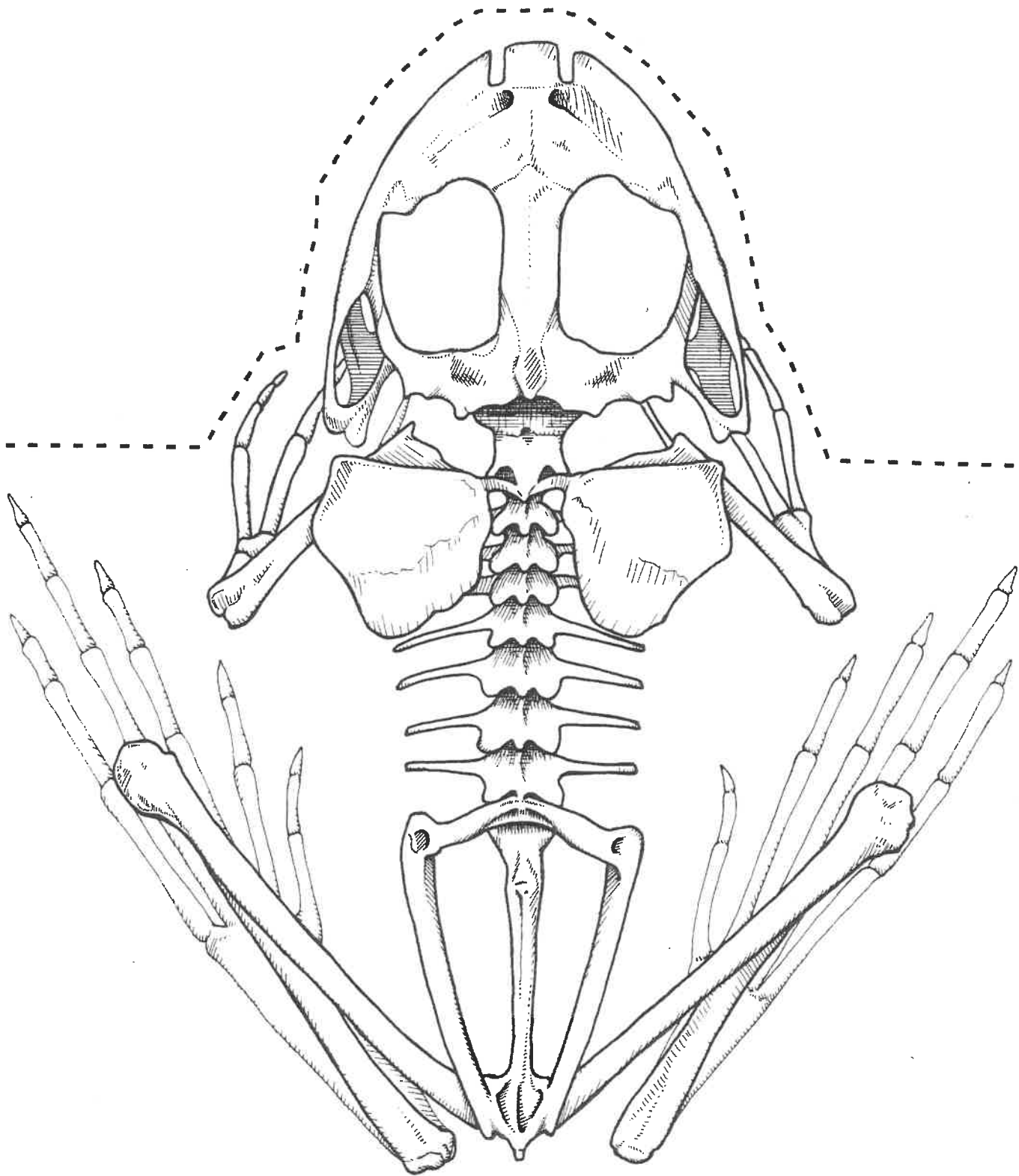
Tree frogs live among grass and bushes, often away from water. They have little suction cups on their toes to help them climb. Many tree frogs in tropical countries are very bright colors.

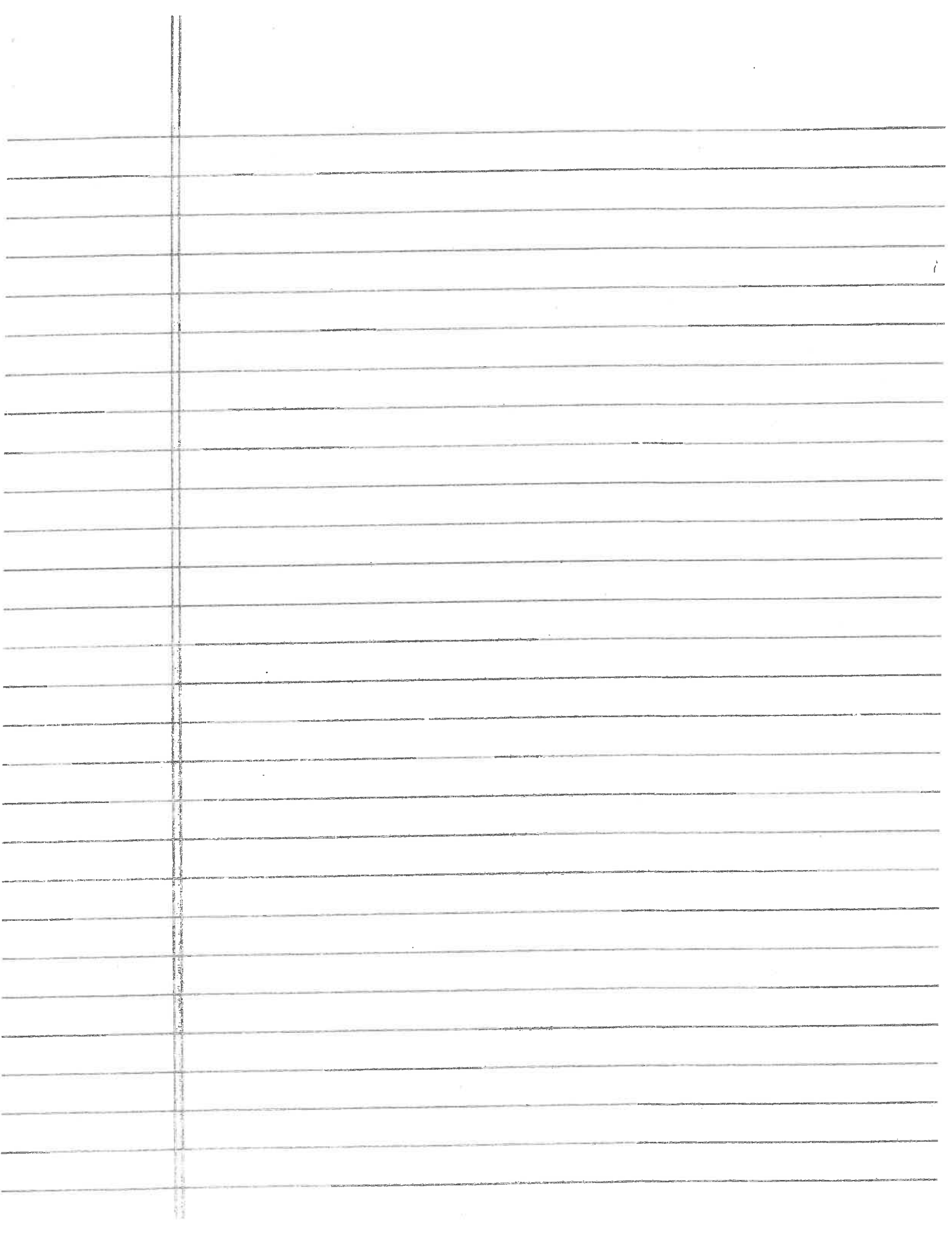


Frog Pattern



Frog Skeleton





Science Spin

scholastic.com/sciencespin3-6

3-6 • May 2019

In This Issue
Bioengineering



PHYSICAL SCIENCE

THE FUTURE OF MEAT?

Scientists are making meat alternatives that look and taste like the real thing.

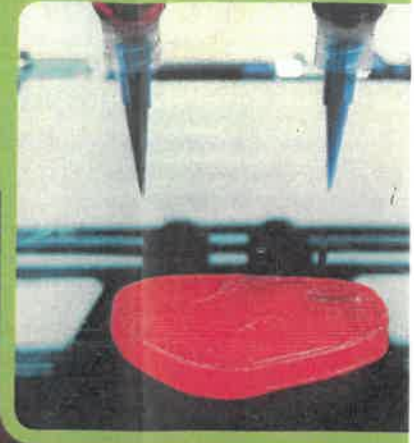
 SCHOLASTIC

Sausage

The protein in Beyond Sausage comes from a blend of peas, beans, and rice. Once it's mixed together, it gets mashed up into a texture that's similar to meat. Then a machine stuffs it into an algae-based casing. This meat alternative packs more protein than a pork sausage.

Steak

Scientist Giuseppe Scionti, from Barcelona, Spain, is using a 3-D printer to print steak. The meat alternative is made from vegetable protein. Scionti prints the fibers of the steak to give it a texture that is close to real steak. The meat alternative isn't sold in stores yet.



Words to Know

cells: the most basic parts of a living thing

molecule: the smallest part of a substance that displays all the chemical properties of that substance

gene: a group of DNA molecules that are inherited, or passed on from parent to offspring

stem cells: basic cells that can turn into other types of cells

protein: a nutrient found in foods from both plants and animals

algae: tiny plantlike organisms that grow mostly in water

Chicken

Chicken is the most popular meat in the U.S. The average American eats about 90 pounds each year. But a chicken product made by growing animal cells in a lab could be coming to your grill any day now. The company Memphis Meats revealed the first chicken meat made from lab-grown chicken cells in 2017. Food testers say the meat alternative tastes just like the real thing.

COOKOUT OF THE FUTURE?

Meat alternatives are coming to your grill.

Summer is almost here! One of the best ways to enjoy the warmer weather is to grill up some juicy burgers at a barbecue. You take a bite. It looks like a burger. It tastes like a burger. But it's made of plants!

Thanks to science, food companies have created meat alternatives that look and taste just like real meat. Some are made from plants. Others are made from animal **cells**.

Eating real meat has some drawbacks, says Matt Ball. He works for the Good Food Institute, where he helps companies develop animal-free products. He says that compared with meat products, meat alternatives require fewer resources, like land, water, and animal feed. For instance, it takes 625 gallons of water to produce one hamburger. It takes only about 3 gallons to make a meatless Impossible Burger (*see right*). And no animals need to be killed to make meat alternatives.

Read on to find out more about meat alternatives that you could grill this summer and in the near future.

— Kathryn Free

Burger

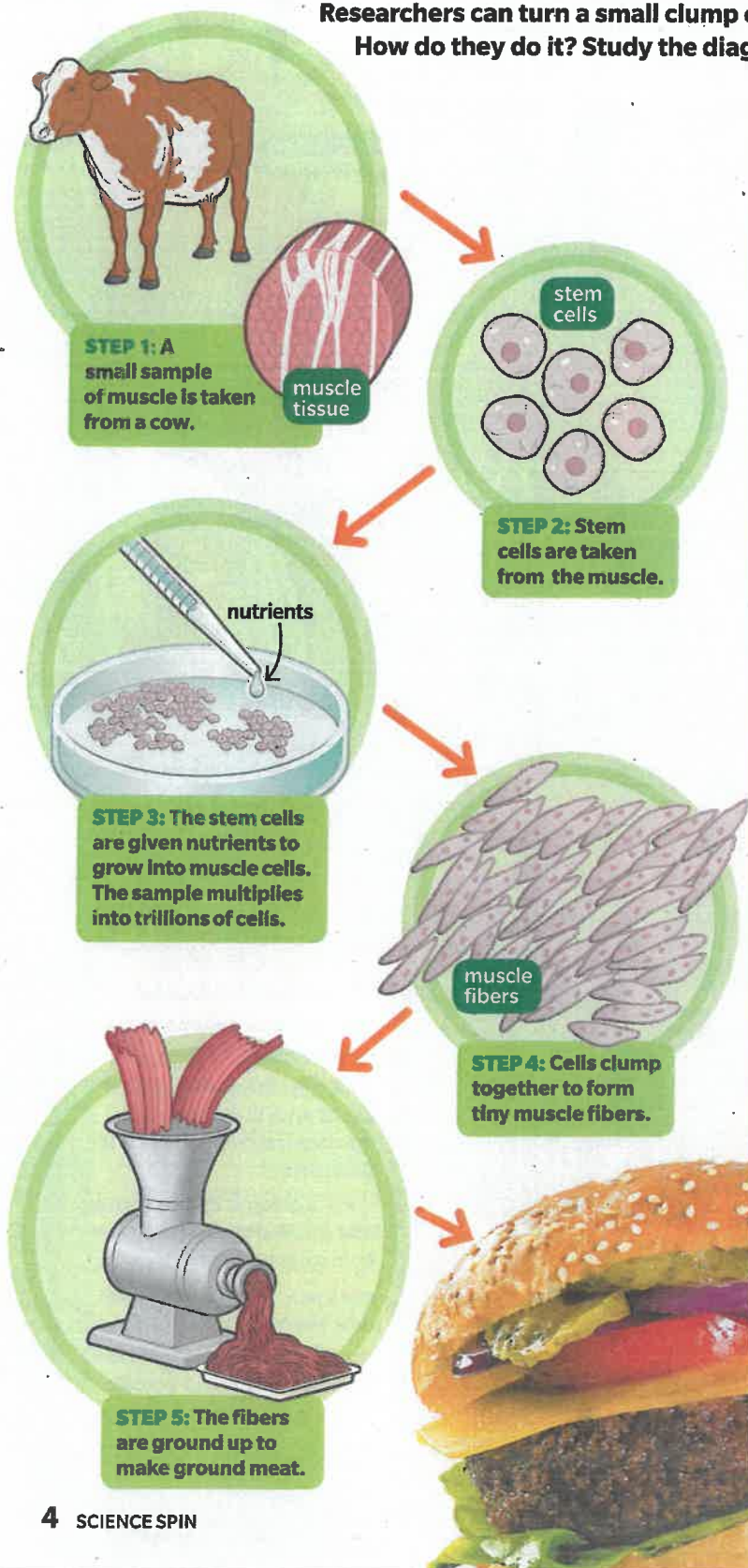
Americans eat 50 billion hamburgers each year. The company Impossible Foods has created a plant-based burger that includes a molecule called heme. Heme is rich in iron and is found in all plants and animals. There's a lot of heme in red meat, giving it its signature flavor. Impossible Foods inserts a gene into a single-celled organism called yeast. The yeast then makes heme. This heme is added to the meatless Impossible Burger to give it a meaty flavor.

And in 2013, scientists revealed the first hamburger made from cow stem cells (*see page 4*). Stem cells are types of cells that can turn into other types of cells, like muscle, blood, or brain cells. The burger cost a whopping \$250,000 to make! The company Mosa Meat is working on cutting costs and hopes to release an affordable burger in the next three to four years.

Name: _____

GROWING A BURGER

Researchers can turn a small clump of cells into a juicy burger.
How do they do it? Study the diagram below to find out.



QUICK QUIZ: Answer the following questions using what you learned from the article and the diagram (left).

- 1 What's the main idea of the article?**
 - Ⓐ Meat has protein.
 - Ⓑ There are many kinds of meat we can eat.
 - Ⓒ Scientists are using technology to create meat alternatives.
 - Ⓓ We should never eat meat.
- 2 Which of the following is NOT mentioned in the article as a drawback of eating meat?**
 - Ⓐ Meat has too much protein.
 - Ⓑ Raising meat requires a lot of water.
 - Ⓒ Raising meat requires a lot of land.
 - Ⓓ Animals are killed.
- 3 How is the steak in the article made?**
 - Ⓐ It's 3-D printed from animal protein.
 - Ⓑ It's 3-D printed from plant protein.
 - Ⓒ It's grown from animal protein.
 - Ⓓ It's grown from plant protein.
- 4 How do cells grown in a laboratory form tiny muscle fibers?**
 - Ⓐ They make the heme molecule.
 - Ⓑ They come from a cow.
 - Ⓒ They are frozen.
 - Ⓓ They clump together.
- 5 Traditional meat comes from stem cells that grow into ____.**
 - Ⓐ brain cells
 - Ⓑ bone cells
 - Ⓒ muscle cells
 - Ⓓ skin cells

MIKE ROGALSKI/GETTY IMAGES (DIAGRAM); MOISA MEAT (BURGER)

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