Giant Clam

Vocabulary

Category: A division of people or things regarded as having shared characteristics.

Key: The key differentiates the categories on the circle graph through color, texture, or letter combinations. Another term for "key" is "legend."

Lead line: A lead line shows where a label would go when the label for a section or wedge cannot fit inside the wedge or section.

Percent: Percent means parts per hundred, measured or counted based on the whole divided into one hundred parts. For example, 1/100 = 1%; 50/100 = 50%.

Pie chart: The term pie chart is often used interchangeably with circle graph.

Section or Wedge: The term section or wedge refers to the pieces making up the circle graph.

Meet the Giant Clam

The giant clam is an endangered species found on the coral reefs around the island continent of Australia and throughout the southern Pacific Ocean. A giant clam can grow to be 5 feet long and weigh 450 pounds. When a giant clam is about 6 months old it attaches itself to a spot on the reef and stays there for the rest of its life. It feeds on algae in the ocean water. A flap of skin called the mantle can usually be seen between the two halves of the giant clam's shell. The mantle can be blue or green depending on the color of the algae in the water. The shell pieces are held together by a muscle. This muscle is considered very good to eat. Tap the next button to continue.

Graphic GC1 is on the following 2 pages in print and simbraille.

Get Ready for Some Questions

Get sheet GC1 out from your notebook. You are going to use it to answer 2 questions. You'll see it on the screen below each question and can double tap with a single finger to make it fill the screen. When you're ready to answer 2 questions about the circle graph on sheet GC1 tap the next button.

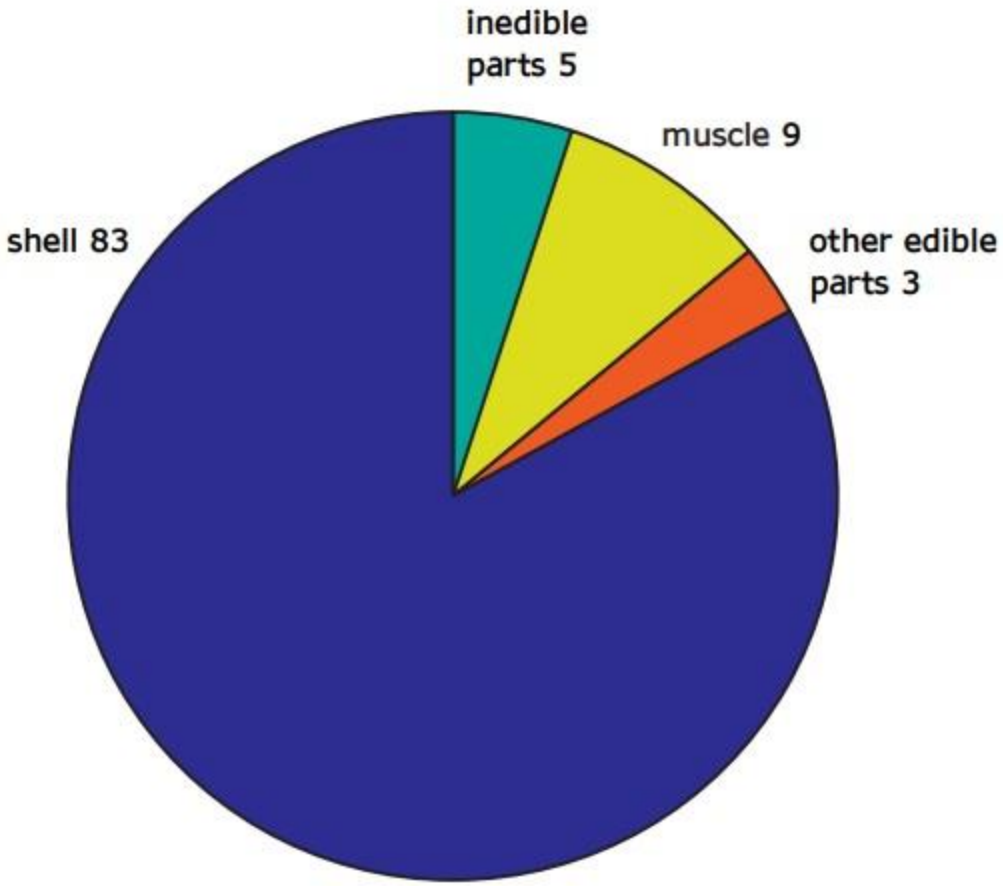
Getting Started 1

Describe this circle graph and tell what each part is. If you are unsure, please try your best. It's ok if you don't know the answer. Record your answer.

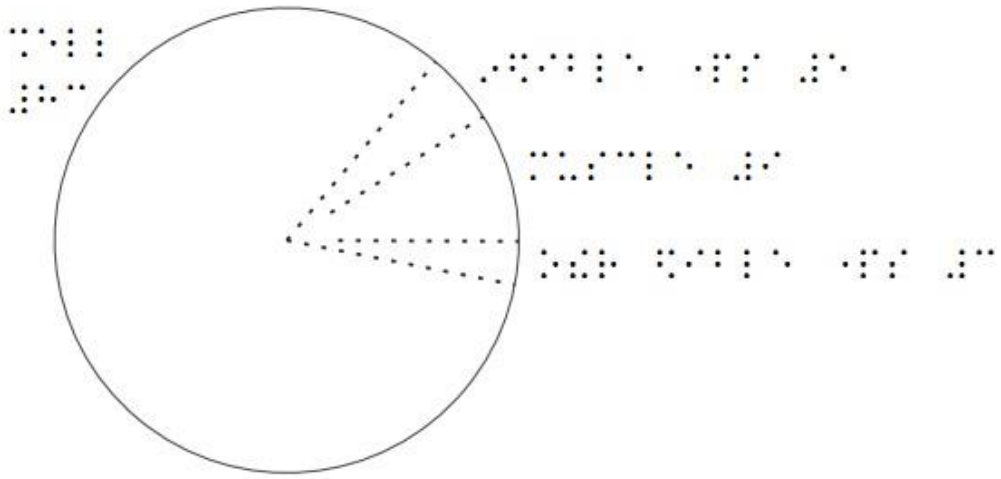
Getting Started 2

What is one thing you know about the giant clam from this circle graph? If you are unsure, please try your best. It's ok if you don't know the answer. Record your answer.

Percentages of the Parts of a Giant Clam



GC1



Graphic GC2 is on the following 2 pages in print and simbraille.

Get Ready for the Warm Up

You are going to use sheets GC1 and GC2 to build your skills with circle graphs. Get both sheets out of your notebook. Be sure to check your answer to each question about circle graphs. If you get an answer wrong, ask your teacher to help you figure out what you missed. You will answer 10 warm up questions. The information you are learning about giant clams comes from research done by scientists. In some cultures, people believe that eating the muscle of giant clams will give someone extra-special romantic powers! Giant clams are now an endangered species in the wild because people harvest them to eat. So many people want to eat giant clams that there are now giant clam farms in the ocean. Farmers raise the giant clams to sell. Giant clams are different sizes depending on where they are in the life cycle. A hatchling can be as little as 1 inch while a fully grown adult can be more than 4 feet long. A diver spending time on a coral reef will see many clams each at different stages of development. Tap the next button to continue.

Warm Up 1

A circle graph is also called a pie chart. Some circle graphs have a title, and some do not. The title is usually at the top of the circle graph and it gives information about the data in the graph. Look at the top of sheet GC1 and GC2. What statement describes the titles on these circle graphs?
A = Neither circle graph has a title.
B = The circle graph on sheet GC1 provides information about the sizes of clams on a coral reef.
C = The circle graph on sheet GC2 provides information about the sizes of clams on a coral reef.
Correct Answer: The circle graph on sheet GC2 provides information about the sizes of clams on a coral reef.

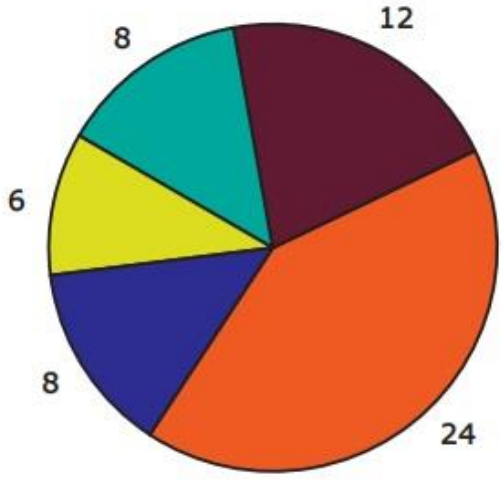
Warm Up 2

Circle graphs are made up of pieces that are called sections or wedges. When you are exploring a circle graph, start on one wedge and hold your finger there so you will know where you started. On sheet GC1 how many sections are shown on the circle graph?
A = 4
B = 5
C = 6
Correct Answer: 4

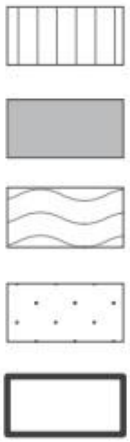
The Number of Different Sizes of Giant Clams Observed on a Coral Reef (1 square mile)

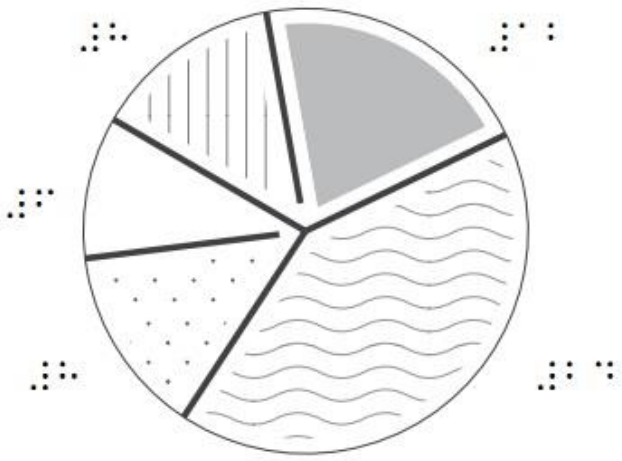
Key:

- large adults (over 4 feet)
- harvestable adults (over 10 inches)
- hatchlings (1-4 inches)
- juveniles (4-10 inches)
- empty shells



GC2





Warm Up 3
Some circle graphs have a key that lists the labels of the sections. The key usually goes in the order of the sections on the circle graph. On sheet GC2 what is the size of the clams listed for the third item in the key?
A = over 10 inches
B = over 4 feet
C = 1 to 4 inches
Correct Answer: 1 to 4 inches

Warm Up 4
Each section of a circle graph has a value. Values can be inside the sections, next to the sections, or in the key. On sheet GC2 how many giant clams are there that are 4-10 inches long?
A = 6 giant clams
B = 8 giant clams
C = 15 giant clams
Correct Answer: 8 giant clams

Warm Up 5
On sheet GC1 the total percentage of the sections add up to 100 percent. Of the three sections that are not shell, what do you know?
A = The inedible part is the largest percentage.
B = The muscle is the smallest percentage.
C = Other edible parts is the smallest percentage.
Correct Answer: Other edible parts is the smallest percentage.

Warm Up 6
On sheet GC2, how many giant clams are over 4 feet long?
A = 8 giant clams
B = 12 giant clams
C = 24 giant clams
Correct Answer: 8 giant clams

Warm Up 7
On sheet GC2, which 2 groups have the same number of giant clams?
A = large adults and hatchlings
B = hatchlings and juveniles
C = large adults and juveniles
Correct Answer: C = large adults and juveniles

Warm Up 8
On sheet GC1 the percentage of the shell is:
A = the largest percentage of the giant clam
B = less than the other combined parts of the giant clam
C = the lowest percentage of the giant clam
Correct Answer: the largest percentage of the giant clam

Warm Up 9
On sheet GC1 parts of the giant clam that total 14 percent are:
A = the other edible parts and the muscle
B = the other edible parts and the inedible parts
C = the muscle and inedible parts
Correct Answer: the muscle and inedible parts

Warm Up 10
On sheet GC2 the total for empty shells, juveniles and large adults is:
A = 22 giant clams
B = 24 giant clams
C = 26 giant clams
Correct Answer: 22 giant clams

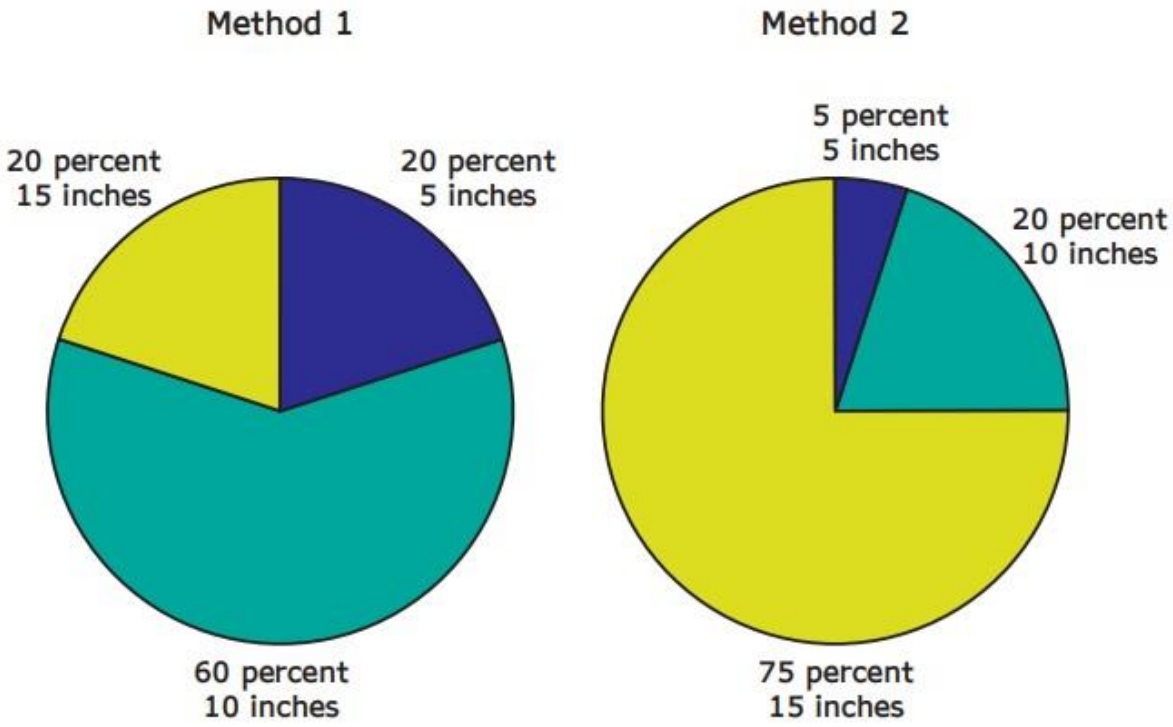
Please remember the student selection for Select Difficulty. The student will be branched to the A, B, or C problem for A5, A6, B5 and B6 questions.

Select Difficulty
Now that you've tried some circle graphs, how well do you understand this topic?
A = Very well, I know this material already.
B = Pretty well; I've worked on circle graphs, but I could use some practice.
C = Not very well; I need more practice.

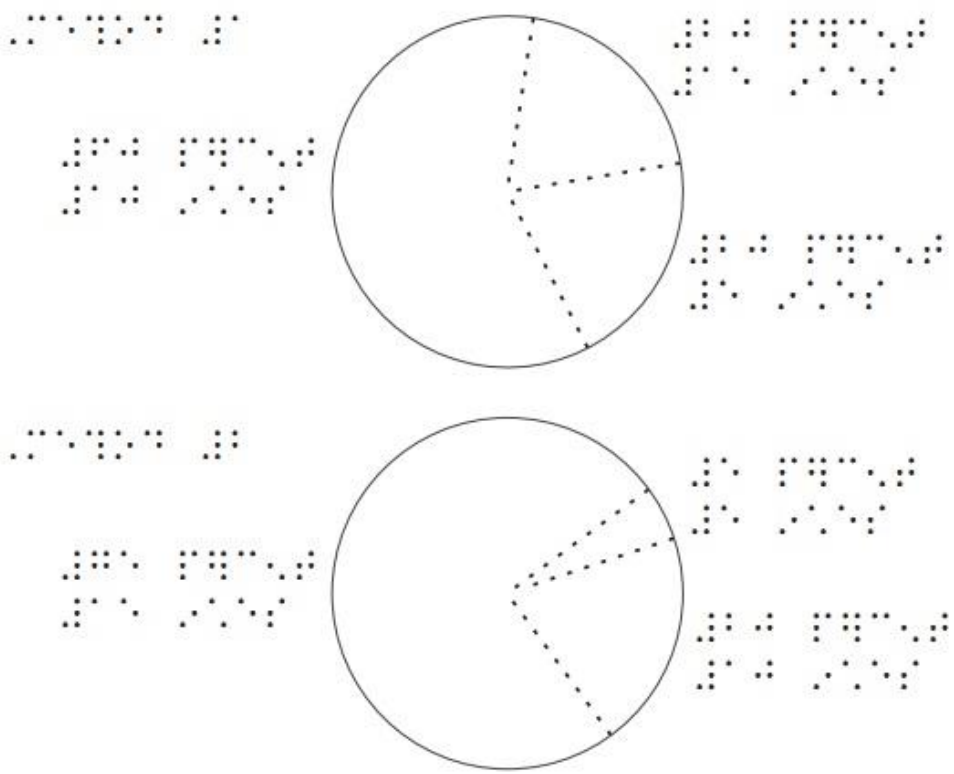
Graphic GC3 is on the following 2 pages in print and simbraille.

Introduction Problem Set A
In problem set A you will answer 5 multiple choice and one open ended question about data on sheet GC3. The giant clam is now a protected species; meaning, that it is illegal to take one away from its home on a coral reef. However, there is a big demand for clam meat, so people are starting to try to raise giant clams in ocean farms. Clam farmers put hundreds of tiny giant clams in baskets tied to the ocean floor and waited for them to grow. Then, some farmers tried a new method. They cleaned algae off the baskets every 3 months. They also took out half the giant clams each year to give the rest more room.

Percentages of Size Categories of Giant Clams Grown Under Two Methods



GC3



Problem A1
What are the giant clam size categories shown in the two circle graphs?
A = 6, 12, and 24 inches
B = 15, 30, and 45 inches
C = 5, 10, and 15 inches
Correct Answer: 5, 10 and 15 inches

Problem A2
The two circle graphs show the results for a 3-year period in which two methods of raising giant clams were used. What percentage of giant clams raised by Method 1 were still only 5 inches long after 3 years?
A = 5 percent
B = 20 percent
C = 60 percent
Correct Answer: 20 percent

Problem A3
After 3 years for giant clams raised in Method 2, what percentage of giant clams were 15 inches long?
A = 20 percent
B = 60 percent
C = 75 percent
Correct Answer: 75 percent

Problem A4
Look at the two circle graphs. What is true about the two clam farming methods used?
A = Giant clams grow at the same rate under either method.
B = Giant clams grow faster under Method 1.
C = Giant clams grow faster under Method 2.
Correct Answer: Giant clams grow faster under Method 2

Have your student answer ONLY ONE of the following three problems based on their selection for the Select Difficulty question – that is A, B, or C.

Problem A5 - A
Giant clams must be at least 15 inches long to be harvested and sold as food. What is the difference in percentage between Method 1 and Method 2 for the giant clams that can not be harvested?
A = 5 percent
B = 40 percent
C = 55 percent
Correct Answer: 55 percent

Problem A5 - B

For Methods 1 and 2, look at the giant clams that are 15 inches long and are ready to harvest. What is the difference in percentage between giant clams ready for harvest in the two groups?
A = 35 percent
B = 45 percent
C = 55 percent
Correct Answer: 55 percent

Problem A5 - C

To sell giant clams for food they must be 15 inches or longer. For giant clams raised in Method 1, what percentage of giant clams are not yet ready to be sold for food?
A = 25 percent
B = 40 percent
C = 80 percent
Correct Answer: 80 percent

Have your student answer ONLY ONE of the following three problems based on their selection for the Select Difficulty question – that is A, B, or C.

Problem A6 - A

Ocean farmers who use Method 2 have more giant clams ready to harvest after 3 years. But they have to take care of the clams by cleaning the cages and removing some of them every 3 months. Do you think that Method 2 is worth the extra effort? Why or why not? Record your answer.

Problem A6 - B

Comparing the circle graphs tells you that Method 2 produces larger clams in 3 years. Remember that Method 2 involves cleaning the cages and removing some clams from the cages every 3 months. Why do you think that removing clams and cleaning the cages might help produce larger giant clams? Record your answer.

Problem A6 - C

A nutrition problem on a farm using Method 2 occurred, affecting the rate of growth of the giant clams. How do you think this will change the percentages in the circle graph? Record your answer.

Graphic GC4 is on the following 2 pages in print and simbraille.

Introduction Problem Set B

In problem set B you will answer 5 multiple choice and one open ended question about data on sheet GC4. In addition to being harvested as a food source, some giant clams are also used for scientific research. For example, scientists might want to include giant clams in research on how ocean pollution affects the coral reef ecosystem. Giant clams are now sought-after for the aquarium trade. Museums, restaurants, shops, and private collectors often include a colorful giant clam on the bottom of a large aquarium, as if it were a real coral reef in the ocean.

Problem B1

What percentage of the giant clams are raised on farms for food?
A = 17 percent
B = 23 percent
C = 38 percent
Correct Answer: 23 percent

Problem B2

What percentage of the giant clams are raised on farms for use in science?
A = 5 percent
B = 17 percent
C = 23 percent
Correct Answer: 5 percent

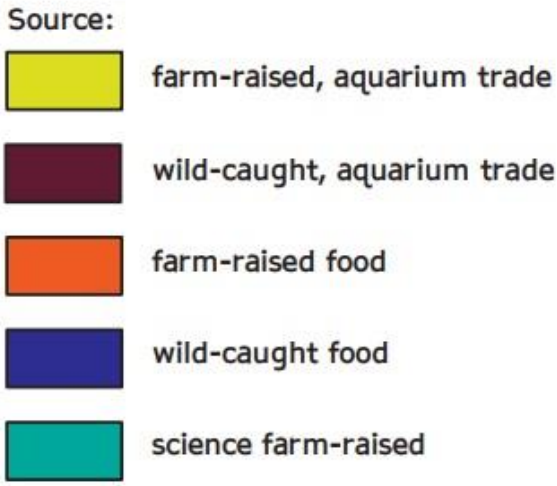
Problem B3

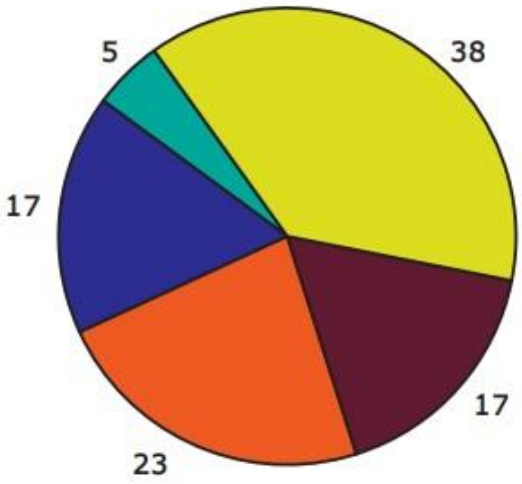
What is the largest category represented in the circle graph?
A = Giant clams raised on farms for the aquarium trade.
B = Giant clams taken from the wild for food.
C = Giant clams taken from the wild for the aquarium trade.
Correct Answer: Giant clams raised on farms for the aquarium trade.

Problem B4

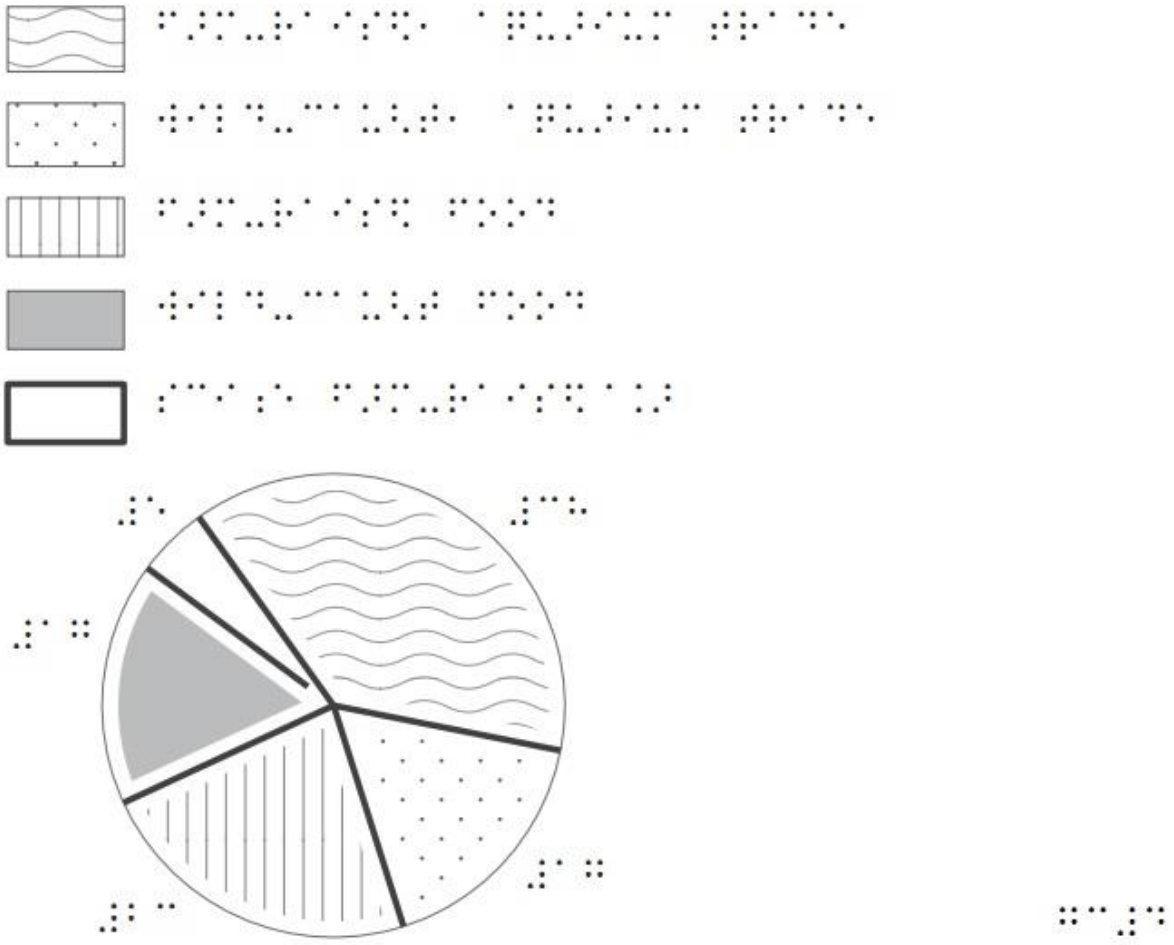
What can you conclude about the giant clam trade from the circle graph?
A = The smallest market is for food.
B = The largest market is for science research.
C = The largest market is for aquarium use.
Correct Answer: The largest market is for aquarium use.

Percentage of Giant Clam Market by Source and Purpose





GC4



Have your student answer ONLY ONE of the following three problems based on their selection for the Select Difficulty question – that is A, B, or C.

Problem B5 - A

How much bigger is the aquarium trade market compared to the food market?
A = 15 percent
B = 25 percent
C = 35 percent
Correct Answer: 15 percent

Problem B5 - B

Giant clams are raised on farms for three reasons. What is the difference in the total percentage of clams raised for aquarium trade compared to the total percentage of clams raised for food and science research?
A = 10 percent
B = 17 percent
C = 24 percent
Correct Answer: 10 percent

Problem B5 - C

What is the difference in the percentage of giant clams farm raised for food and those caught in the wild for food?
A = 5 percent
B = 6 percent
C = 7 percent
Correct Answer: 6 percent

Have your student answer ONLY ONE of the following three problems based on their selection for the Select Difficulty question – that is A, B, or C.

Problem B6 - A

There are new laws about who can sell giant clams raised for the aquarium trade. Now there are fewer wild-caught giant clams available for sale but people still want these clams for their aquariums. Describe what the circle graph would now look like? Record your answer.

Problem B6 - B

Fewer people want to eat clams for food. How will changing the use for the clams change the way the graph looks? Record your answer.

Problem B6 - C

Scientists are given permission to use wild-caught giant clams for science. How will changing the use for the giant-caught clams change the way the graph looks? Record your answer.

Check In

Now that you've completed the unit, how do you feel about your ability to use circle graphs in your school work?
A = Super, I can work with almost any circle graph.
B = Ok, but I need more practice.
C = Not good, circle graphs are confusing.

What I Learned

What is one thing you learned about reading and interpreting circle graphs? Record your answer.

Conclusion

The giant clam used to be found throughout the coral reefs in the southern Pacific Ocean. Although it is disappearing from the wild, the species may survive because people are raising giant clams on ocean farms. In this unit, you used circle graphs to learn about the giant clam's value as food and for the aquarium trade. Circle graphs can be a useful way to compare sizes and amounts. However, some people say that if a circle graph has more than six segments, it gets too difficult to tell them apart and there may not be enough room for the labels. Still, if the goal is to compare a small number of categories, circle graphs can do the job! Tap the next button to see your Score Report for this unit.

Follow-Up

Below are some ideas for follow-up activities you may wish to do with your student to reinforce the concepts in Giant Clam: Circle Graphs.

- Have the student construct a circle graph with data either found on the Internet or in a book or data you or the student make up. In constructing the circle graph, the student might wish to use the APH **Draftsman Tactile Drawing Board and stylus**, Catalog No: 1-08857-00, the **APH Braille-Large Print Protractor**, Catalog No: 1-04115-00, and a **Fiskars compass**, or they might prefer using a **Sewell Raised Line Drawing Board**, braille paper, pen, the APH **Braille-Large Print Protractor**, Catalog No: 1-04115-00, and the APH **Tactile Compass for Math & Art**, Catalog No: 1-08834-00. The following website features videos of such constructions: https://www.tsbvi.edu/videos-webinars/mathematics.

- Have the student examine circle graphs that have keys observing the relationship between the information in the key and the circle graph.
- Have the student poll their peers about a subject of interest. Based on the results, ask the student to calculate percentages and create a circle graph to represent the findings.
- Have the student research the giant clam to learn additional facts about this invasive species.
- Have the student research the impact of pollution on coral reefs.
- Have the student locate countries which have coral reefs off their coasts on a map of the southern hemisphere.
- Have the student develop a pamphlet or presentation that highlights the importance of protecting coral reefs in our oceans.
- Have the student locate videos of the giant clam to watch in order to see this species in its natural habitat.
- Have the student locate Australia on a map or globe. The student can calculate the travel distance from the United States to Australia.