


Grade 8 Mathematics

Data Analysis, Probability, and Discrete Math:

Lesson 7

Read aloud to the students the material that is printed in **boldface type** inside the boxes. Information in regular type inside the boxes and all information outside the boxes should **not** be read to students. Possible student responses are included in parentheses after the questions.

NOTE: The directions read to students may depend on the available materials. Read only those parts of the lesson that apply to the materials you are using.

Any directions that ask you to do something, such as to turn to a page or to hand out materials to students, will have an arrow symbol () by them.

Purpose of Lesson 7:

- In this lesson, the tutor and the students will
 - ✓ organize and display data using circle graphs, and
 - ✓ interpret data from circle graphs.

Equipment/Materials Needed:

- Copies of Student Sheet 115
- Paper and pencils
- Chalkboard

Preparations before beginning Lesson 7:

- Run one copy of Student Sheet 115 for each student.
- Have paper and pencils available.

Lesson 7: Data Analysis, Probability, and Discrete Math


Say:

In this lesson, you will look at circle graphs. A *circle graph* shows how a whole is broken into parts. A circle graph also shows how the parts of something are related to the whole and how the parts are related to each other. A circle graph is sometimes called a *pie graph* or a *pie chart*.

 Give students Student Sheet 115 Part A.

Say:

Let's look at the first graph.

 Discuss the title, labels, and sections of the graph. Have students answer questions 1 – 10.


Answers to Part A:

- | | | |
|--------------------------------------|-----------------|-----------|
| 1. the Smart Family's monthly budget | 2. 6 ways | |
| 3. food | 4. 18% | 5. 43% |
| 6. 6%, everything must add to 100% | 7. food | |
| 8. rent, food, and utilities | 9. about \$1200 | 10. \$210 |

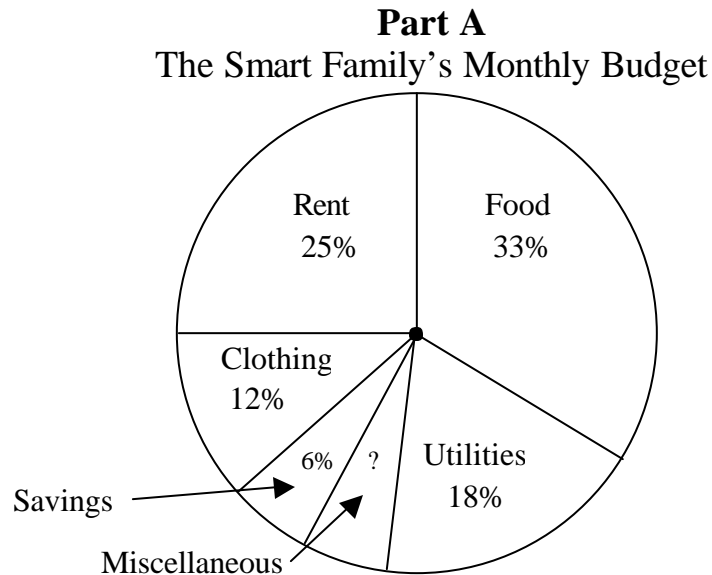
 Give students Student Sheet 115 Part B.

Answers to Part B:

- | | | |
|---------|----------|--------|
| 1. blue | 2. green | 3. red |
| 4. B | 5. D | 6. C |

 Have one student summarize today's lesson. Circle graphs are useful when comparing parts to a whole.

Student Sheet 115 (Data Analysis: Lesson 7)



The **title** of the graph tells what the graph is about.

The **labels** tell the facts. Sometimes, the labels are written inside the circle. If there is not enough room, the labels may be placed outside the circle.

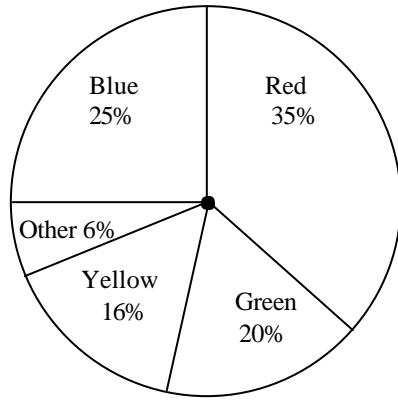
The **sections**, or **sectors**, of the circle show what part of the whole the facts represent.

Answer the following questions about the graph above.

1. What is the graph about?
2. How many different ways does the family spend its earnings?
3. On what do the Smarts spend most of the family income?
4. What percent is spent on utilities?
5. What percent is spent on rent and utilities?
6. What percent is spent on miscellaneous items? How do you know?
7. About one-third of the budget is spent on which item?
8. Which three items make up approximately $\frac{3}{4}$ of the budget?
9. If the Smart family's total earnings are \$3500 a month, about how much does the family spend on food?
10. If the Smart family's total earnings are \$3500 a month, about how much does the family put in a savings account each month?

Student Sheet 115 (Data Analysis: Lesson 7) continued

Part B



Use the graph to the left to answer questions 1 – 6.

Students at Barbre Middle School were selecting class colors. They were surveyed about their favorite color. The results are shown in the graph. Each student was allowed only one vote.

1. Which color received $\frac{1}{4}$ of the votes?
2. Which color received $\frac{1}{5}$ of the votes?
3. Which color received about $\frac{1}{3}$ of the votes?
4. Which two colors together received 55% of the votes?
 - A. blue and red
 - B. red and green
 - C. blue and green
 - D. yellow and red
5. If 400 students were surveyed, approximately how many chose “other” colors as their favorite?
 - A. 240 students
 - B. 180 students
 - C. 72 students
 - D. 24 students
6. Which is a reasonable conclusion that could be drawn from the graph?
 - A. One-twentieth of the students chose blue.
 - B. Green is the least popular color.
 - C. Approximately twice as many students chose red rather than yellow.
 - D. More students like blue than red.