

Sample Pages from



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SHELL
EDUCATION

Full-color
Teacher
Resource CD



Leveled Texts for Mathematics

Data Analysis and Probability


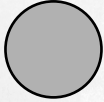




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How to Use This Product

Readability Chart

Title of the Text	 Star	 Circle	 Square	 Triangle
Collecting Data	2.2	3.5	5.0	6.6
Creating Pictographs	2.2	3.3	5.3	6.5
Analyzing Pictographs	2.1	3.4	5.2	6.8
Creating Bar Graphs	1.9	3.4	5.0	6.8
Analyzing Bar Graphs	2.2	3.5	5.3	6.6
Creating Line Graphs	2.2	3.5	5.0	6.6
Analyzing Line Graphs	2.2	3.5	5.2	6.5
Creating Circle Graphs	2.2	3.4	5.3	6.5
Analyzing Circle Graphs	2.2	3.1	5.0	6.5
Comparing Graphs	1.9	3.0	5.0	6.5
What Does <i>Mean</i> Mean?	2.2	3.5	5.1	6.6
Median in the Middle	2.1	3.5	5.1	6.5
Mode and Range	2.2	3.0	5.1	6.5
Probability of Events	2.2	3.5	5.0	6.6
Probability Experiments	2.2	3.1	5.3	6.6

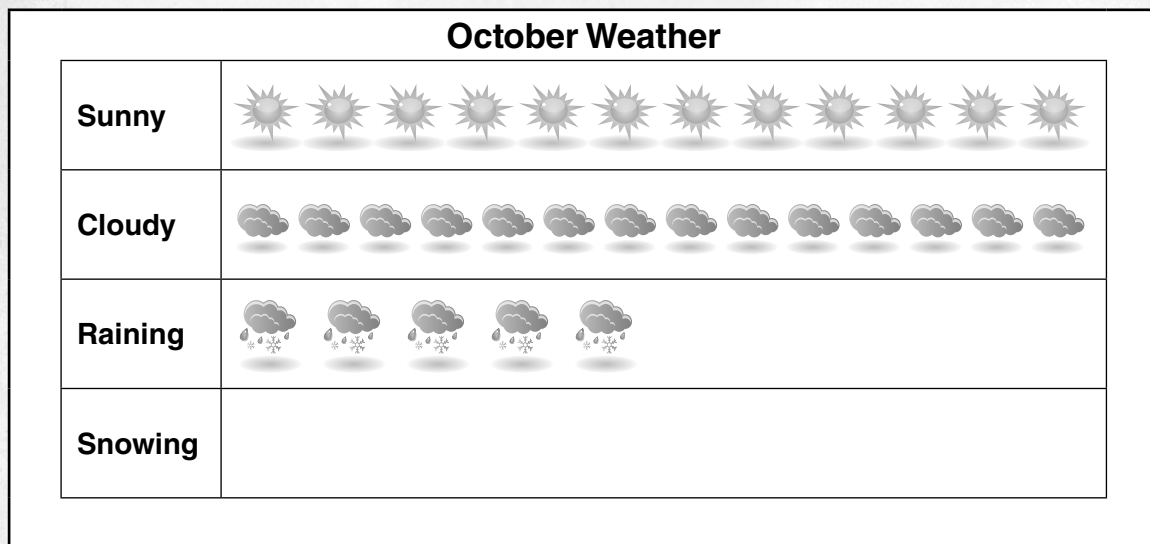
Components of the Product

Strong Image Support

- Each level of text includes important visual support. These images, diagrams, photographs, and illustrations add interest to the texts and help students comprehend the mathematical concepts. The images also serve as visual support for second-language learners. They make the texts more context-rich and bring the examples to life.

Creating Pictographs

Marvin and Zuna wanted to keep track of the weather. They did this for the month of October. Every morning they would check outside. Then they would draw a picture of the weather. The chart they made is below. Why do you think there are no pictures in the “snowing” row?



Basic Facts

One way to show data is to use a **pictograph**. Pictographs are picture graphs. They use pictures to show data. They are also called *pictograms*. Or, they are called *picture graphs*. Each picture in the chart can stand for one piece of data. Or, it can stand for a whole group. In the chart above, they used a picture to show each day. There are no pictures in the “snowing” row. It did not snow that month.

When a Picture Is Worth More Than a Piece of Data

Pictographs can be used to show a lot of data. It may not be a good idea to use one picture for each item. You might want each picture to show a group. Let us say that Mrs. Lundy’s class wants to make a pictograph. They want to show what lunches people choose. The school has 300 people. So that would be a lot of drawings! Each picture stands for 20 meals instead of one meal. The key on the graph tells us this. That lets the chart stay much smaller. And it is easier to read.

But, what if the total number does not equal a group of 20? Pictographs can use parts of pictures. These pictures show smaller amounts. For example, half a picture would be 10 lunches.

But, what if the partial picture is meant to show 9 lunches? Or 11 lunches? It is hard to divide a picture to show this. We might not know the right amounts for sure. The person who made the graph must tell us. That is one of the drawbacks of a pictograph.

Creating a Pictograph

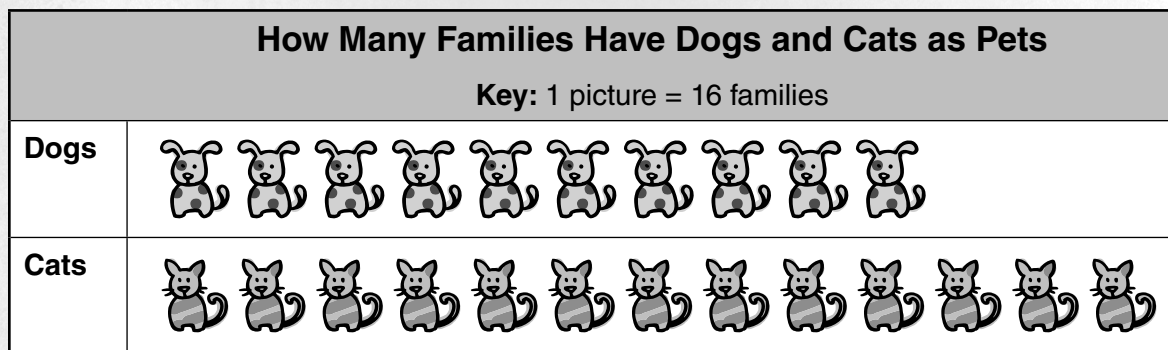
David wants to show how many families in his school have cats and dogs. He finds out that 208 families have cats. There are 160 families that have dogs. He wants to make a pictograph to show this data.

Step 1: Decide how many items each picture will represent. Often people choose factors of 10. But, different numbers make sense, too. A good choice might be to use a common factor. David notices that 208 and 160 are both divisible by 16. $208 \div 16 = 13$ and $160 \div 16 = 10$. He chooses to make each picture equal to 16 families. He notes his choice in a key.

Step 2: Decide on a picture. It should be something that looks like your data. You will need to use it many times. You might want to draw your pictures by hand. If so, choose something simple. David chooses to use a dog and cat! He labels the rows to show what they stand for.

Step 3: Create your graph. Draw pictures to show all the data. Make sure the partial pictures show the right amount. Be neat and clear. Make sure your pictures are the same size. If they are not, it will be hard to see the contrast.

Step 4: Give your graph a descriptive name and key. The title should tell you what the graph shows. The key should show you how much data each picture stands for. You can choose to leave out the key. But you can only do this if each picture shows one piece of data.



Pictographs in Our Daily Lives

Many newspapers use pictographs. And magazines use them, too. Pictographs are eye-catching. And they are easy to understand. They can be colorful. And they are a great way to show contrast. This makes them an ideal tool. They can help make data easy to understand.

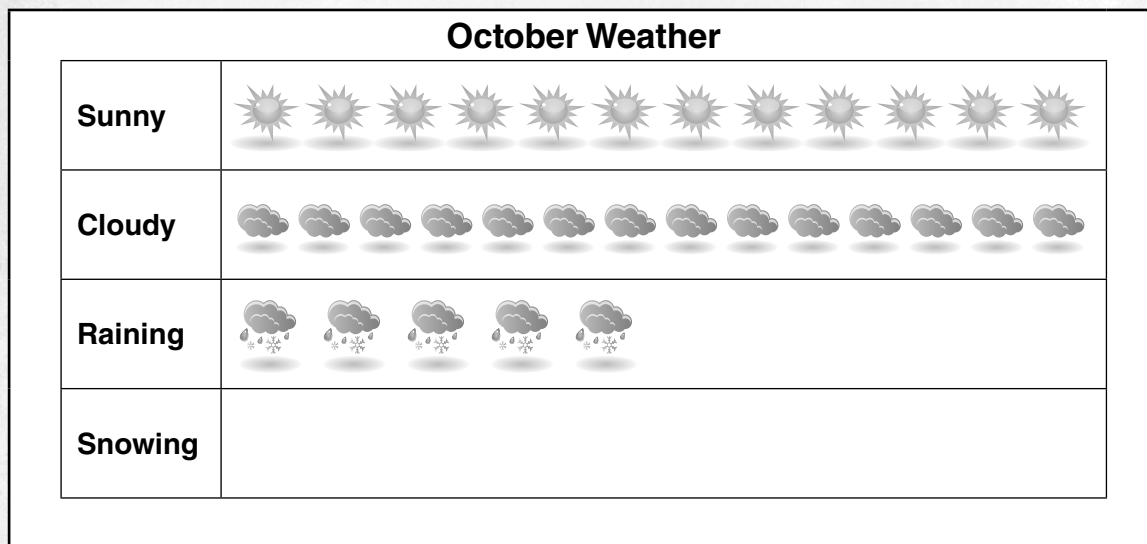


You Try It

Create a pictograph. Show the favorite colors of the kids in your class.

Creating Pictographs

Marvin and Zuna wanted to keep track of the weather in their area. They did this for the month of October. Every morning they would check outside. Then they would draw a picture of what the weather was like. The chart they made is below. Why do you think there are no pictures in the “snowing” row?



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When a Picture Is Worth More Than a Piece of Data

Pictographs can be used to show a lot of data. It may not be practical to use one picture for each piece of data. Instead, each picture shows a group. Let us say that Mrs. Lundy’s class wants to make a pictograph. They want to show how many people at school choose different lunches. The school has 300 people. So that would be a lot of drawings! Each picture on the graph stands for 20 meals instead of one meal. The key on the graph tells us this. That lets the chart stay much smaller. And it is easier to read.

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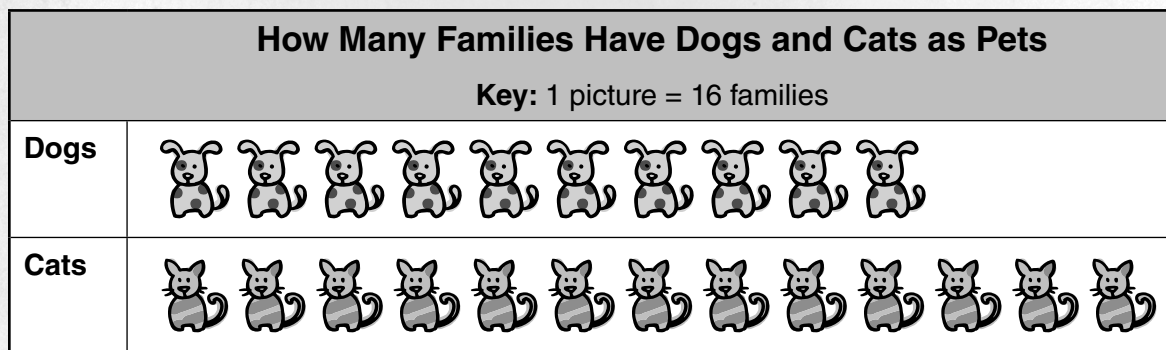
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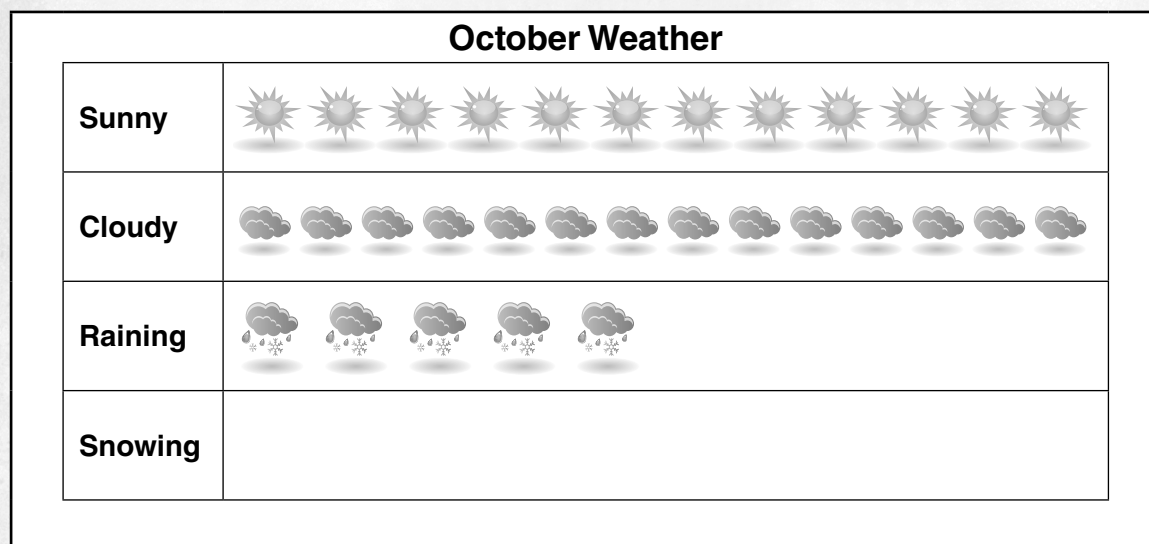


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Creating Pictographs

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When a Picture Is Worth More Than a Piece of Data

Often pictographs are used to show large groups of information. It may not be practical to use one picture for each piece of data. Instead, each picture shows a group. For instance, let us say that Mrs. Lundy’s class wants to make a pictograph showing how many people at the school chose different lunches. The school has 300 people, so that would be a lot of drawings! Instead of each picture standing for one meal, the key on the graph tells us that each picture stands for 20 meals. That lets the chart stay much smaller and easier to read.

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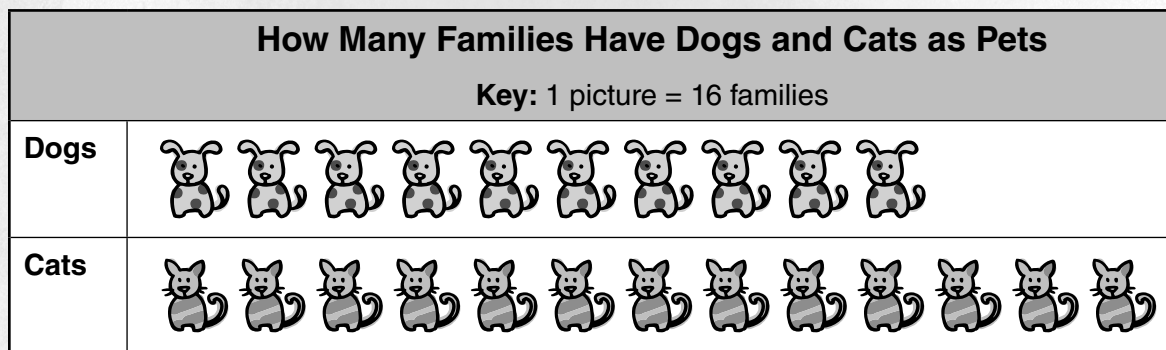
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Step 2: Decide on a picture. It should be something that relates to your data. Remember that you will need many copies of it. So, if you are making your pictograph by hand, choose something simple. David decides a dog and cat make the most sense for his pictograph! He labels the rows to show what they represent.

Step 3: Create your graph. Fill in enough pictures to represent all the data. If you have partial groups, make sure the partial pictures show the right amount. Be neat and clear. Make sure your pictures are the same size. If they are not, it will be hard to see the comparison.

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Pictographs in Our Daily Lives

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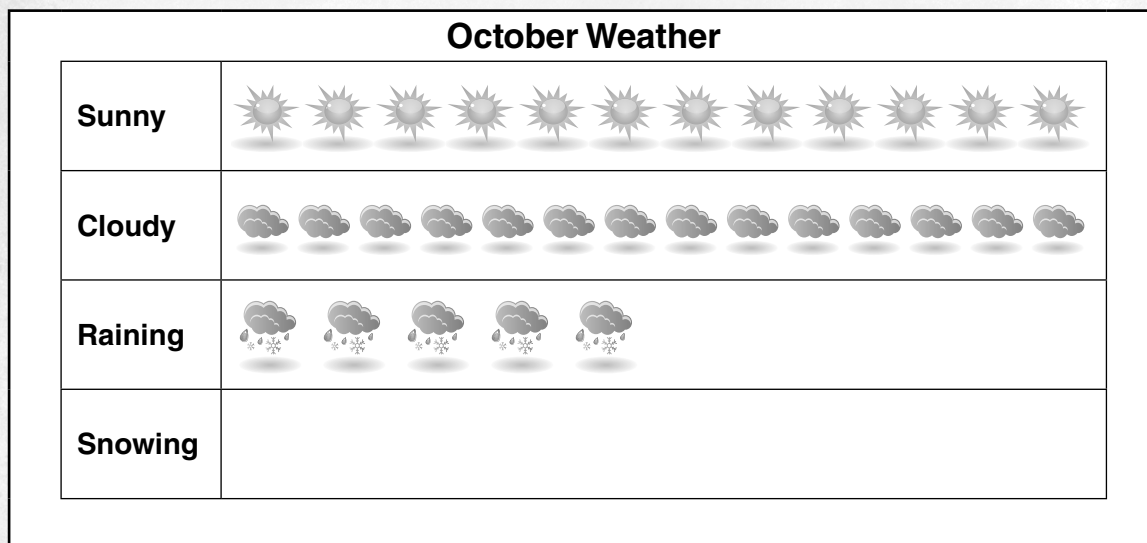
You Try It

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Create a pictograph showing the favorite colors of the students in your class.

Creating Pictographs

Marvin and Zuna wanted to keep track of the weather in their area for the month of October. Every morning they would get up and check the weather outside. They would draw a picture of what the weather was like and then record their results on the chart below. Why do you think there are no pictures in the “snowing” category?



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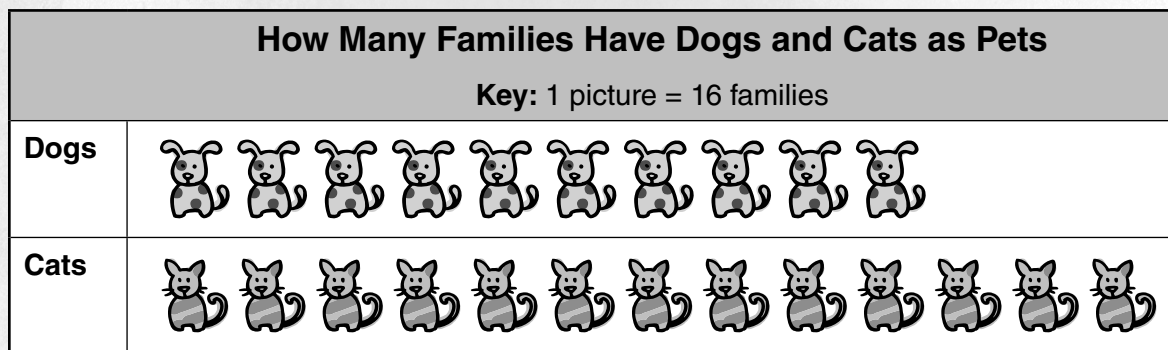
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