







Guess My Rule with Two Rules

Math Focus Points

- ◆ Sorting a set of data by two attributes at one time
- ◆ Using a Venn diagram to represent a sorted set of data
- ◆ Sorting the same set of data in different ways
- ◆ Describing what the data show about the group surveyed

Vocabulary

Venn diagram

Today's Plan		Materials
<p>1 <small>ACTIVITY</small> Introducing Venn Diagrams</p>	 15 MIN  CLASS	<ul style="list-style-type: none"> • Small Yektti Cards and Yektti Word Cards (from Session 1.2) • Chart paper or yarn loops
<p>2 <small>ACTIVITY</small> Yektti Guess My Rule with Two Rules</p>	 30 MIN  GROUPS	<ul style="list-style-type: none"> • Yektti Cards and Yektti Word Cards (from Session 1.2) • Chart paper or yarn
<p>3 <small>DISCUSSION</small> What's Your Favorite Weekend Activity?</p>	 15 MIN  CLASS	<ul style="list-style-type: none"> • C36, Bar Graph (Vertical) Make one copy. • Self-stick notes; chart paper • Charts showing "What is your favorite weekend activity?" and "How can we organize the Favorite Weekend Activity data?" (from Session 1.2)
<p>4 <small>SESSION FOLLOW-UP</small> Daily Practice</p>		<ul style="list-style-type: none"> • <i>Student Activity Book</i>, p. 4 • <i>Student Math Handbook</i>, pp. 105–108

Classroom Routines

What Time Is It?: Counting the Minutes Using The Clock (M43) students divide a clock in half by drawing a line from the 12 to the 6. Students then count the number of minutes on each half and on the clock as a whole. Show the transparency of The Clock (T36), and discuss why 30 minutes is half an hour.

1 ACTIVITY

Introducing Venn Diagrams



Ask students to gather around you on the floor or at a table where you have placed a sheet of chart paper with two non-intersecting circles on it. Alternatively, you can use two separate yarn loops.

Play *Guess My Rule* with the class, using a set of Small Yektti Cards and Yektti Word Cards from the previous session. For this game, choose 2 Word Cards.

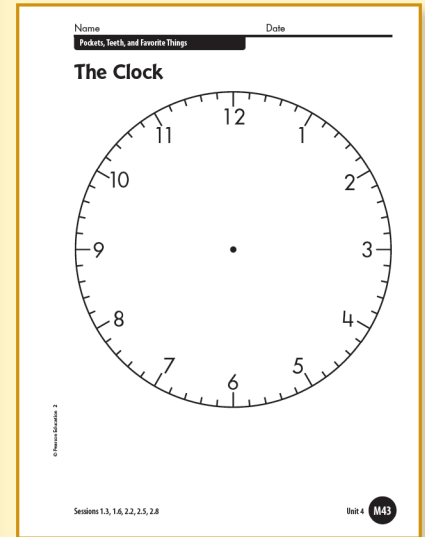
- Spread out the Small Yektti Cards face up.
- Choose two Word Cards (e.g., “hexagon” and “3 antennae”).
- Place one Word Card, face down, in each circle.
- Place one Yektti Card that fits each rule, face up, in each circle, and two Yektti Cards that do not fit the rule outside the circles.



Students play Guess My Rule with small Yektti Cards.

Students specify in which circle they think a card belongs. Have them place Yekttis that they think do not fit either rule in a visible space outside the circles. If a student places a card that does not fit the rule of the specified circle, you might say this:

- That Yektti does not fit the rule of the circle you chose, but it does fit the rule of the other circle.
- That Yektti doesn't fit the rule of the circle you chose, and it does not fit the rule of the other circle, so I'll place it outside both of the circles.



▲ Resource Masters, M43; T36

Professional Development

- 1 **Dialogue Box:** This Yektti Fits in Both Groups, Unit 4 p. 135

Differentiation

- 2 **English Language Learners** In order to understand and discuss Venn diagrams, English Language Learners must be familiar with words that describe position, such as *left*, *right*, *middle*, *inside*, and *outside*. You can teach these words with a physical demonstration. Place two large, overlapping circles of yarn (or two overlapping hula-hoops) on the floor, and demonstrate various positions in relation to them. *I'm standing outside the circles. Now I'm standing inside the left circle. [Tia], please stand inside the right circle. [Juan], please stand in the middle, inside both circles. Now let's all step outside the circles.* Repeat the demonstration using other students. Then have students take turns telling each other where to stand in relation to the circles.

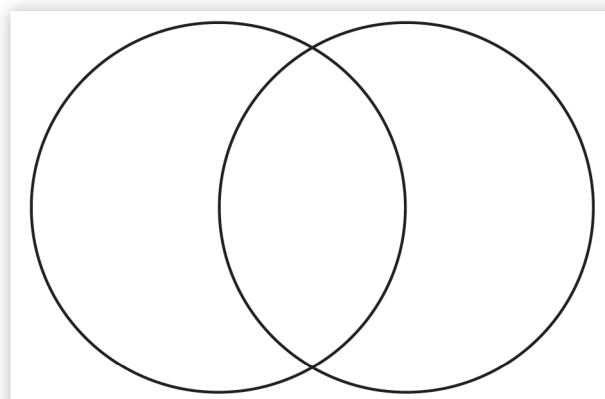
Students may have a card with a Yektti that has both attributes. If they are uncertain where to place the card, encourage them to suggest ways to address the situation. 1

How should we show when a card fits both rules?

Some students might suggest creating a third circle or they might suggest placing the cards so that they touch both circles. Follow through with their suggestions.

When students guess the mystery rules, turn over the Word Cards and continue to sort the remaining cards.

When the game is over, display a second sheet of chart paper, one with overlapping circles (or overlap the yarn loops).



These overlapping circles make a **Venn diagram**. 2 A Venn diagram is a picture that mathematicians use to show things that belong in more than one group. The place in the middle is inside both circles, so it fits both rules. If we look at the Yekttis in the game we just played, which ones belong in the middle?

After students sort all the cards, ask them to describe what they see.

- Which Yekttis can go only in the left circle? How did you figure that out?
- Which can go only in the right circle?
- Which go in the middle?
- Which Yekttis can't go in either of the circles? How do you know?

2

ACTIVITY

Yektti Guess My Rule with Two Rules



Students form groups of three or four to play *Guess My Rule* with Yekttis, using two mystery rules. Each group will use a sheet of chart paper with a Venn diagram or two overlapping yarn loops on it. Each person in the group will have a chance to select the mystery rules by choosing two Yektti Word Cards and placing them face down, one in each circle.

As you circulate, remind students that the middle section of the diagram is really inside both circles and is the place for Yekttis that fit both rules. Sometimes no Yekttis will fit in the middle (e.g., when students choose “triangle head” and “hexagonal head” as rules). Point out that these are still legitimate rules.

Many analytical skills are used in this game. You may notice the following:

- Students may be able to place the cards accurately but may not be able to verbalize the description of each group.
- Students may be able to describe the groups after they have been formed, but they may not be as good at using evidence to classify the cards during the course of the game.
- Students may have difficulty recognizing which cards fit both rules and may put those cards in one of the one-rule sections.

The more students work with sorting a set by two attributes, the more familiar they will become with these ideas.

ONGOING ASSESSMENT: Observing Students at Work



As students play *Yektti Guess My Rule with Two Rules*, observe how they sort sets of data by using two attributes.

- **Do students sort the Yektti cards according to the chosen rules?**
- **Are students able to identify when a Yektti fits both rules and place it appropriately?**
- **Do students use the Yekttis that are already sorted as evidence to help them choose the next card?**



DIFFERENTIATION: Supporting the Range of Learners

Intervention Some students may find playing *Guess My Rule* challenging enough with one rule. These students can continue playing with only one rule.

Intervention Some students may benefit from looking more closely at each circle in the Venn diagram. For example, if the rules are “square” and “2 antennae,” you might cover up the “square” part of the circle and direct students to look at the whole circle for “2 antennae.”

- What is the same about all of the cards in the circle? (They all have 2 antennae.)
- What is different about the ones in the middle? (They have 2 antennae and they are square.)

Next, cover up the area for “2 antennae” and look at the whole circle for “square.” Ask the same questions. This may help students see the purpose of the overlap and the relationships between the different parts.



Students place cards that fit both rules in the overlap of the two circles.

3

DISCUSSION

What's Your Favorite Weekend Activity?



15 MIN



CLASS

Math Focus Points for Discussion

- ◆ Sorting the same set of data in different ways
- ◆ Describing what the data show about the group surveyed

Post the charts, “What is your favorite weekend activity?” and “How can we organize the Favorite Weekend Activity data?” from Session 1.2. Choose one of the ways that students suggested organizing the data that has at least two categories.

A few days ago you took a survey on your favorite weekend activities, and these were your responses. [Point to the self-stick notes on the chart paper titled “What is your favorite weekend activity?”] We talked about organizing the data in a few different ways so we could learn more about the types of activities that are your favorites. One person suggested organizing the data into [outdoor] activities and [indoor] activities. Let’s try that.

Write “Outdoor Activities” and “Indoor Activities” on the posted charts.

Now, let’s sort our data into these two groups.

Place the weekend activity self-stick notes from Session 1.2 under the categories in which students decide they belong.

What is your favorite weekend activity?

Outdoor Activities	Indoor Activities
<div style="border: 1px solid black; padding: 5px; display: inline-block; margin-bottom: 10px;">Playing soccer with friends</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-bottom: 10px;">Walking the dog</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">Playing basketball</div>	<div style="border: 1px solid black; padding: 5px; display: inline-block; margin-bottom: 10px;">Reading</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">Watching tv.</div>

Students may disagree on where to place certain activities, or they may think some belong in more than one category. For example, students may say that basketball can be played indoors and outdoors. Together, decide where to put that piece of data. If they think it belongs equally in both, they may decide to put it between the two categories.

After students sort the data, display a new sheet of chart paper titled “What We Learned,” and ask the following questions:

What does looking at the data sorted in this way show us about students’ favorite weekend activities? What can we say about the data?

Name _____ Date _____

Pockets, Teeth, and Favorite Things

Bar Graph (Vertical)

Title: _____

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▲ Resource Masters, C36

Professional Development

- 3 **Dialogue Box:** What’s Your Favorite Weekend Activity?, Unit 4 p. 137

Teaching Note

- 4 **Save the Charts** Save all charts for the next session.

Math Note

- 5 **Bar Graphs** Bar graphs can be used to represent categorical or numerical data. They can either be vertical or horizontal with one axis showing the categories or values and the other showing the number of times (or frequency) each value occurs. The bars are separated from each other to show that each bar represents one category or value. The light grids on C36 and C37 assist students in making accurate bars. Eventually they will use a bar without any grids, instead relying on the frequency scale.

Write students’ observations. They will probably talk about how many more activities there were in one category rather than the other.

What We Learned

Outdoors/Indoors

More people like to do outdoor activities.

When sorting the Weekend Activity data into more than two categories, organize the self-stick notes into columns labeled with the categories being used (i.e., alone, with 1 person, small group, team). Discuss the number of pieces of data in each column. 3 4

Finally, display a copy of Bar Graph (Vertical) (C36). Explain to students that this data can also be represented on a bar graph. Ask students to help you transfer the information on the chart to the bar graph.

Ask students if they enjoy a weekend activity that they do alone. Shade in that number of squares to show that group of data.

Before shading in the next “bar,” explain to students that when making a bar graph, some space should be left between each bar. As students direct you, shade in the remaining bars to represent the remaining data. Label each bar, and have students choose a title for the graph. Ask students to describe the data that is represented on the bar graph. 5

▲ Student Activity Book, Unit 4, p. 4

4 SESSION FOLLOW-UP Daily Practice



Daily Practice: For reinforcement of this unit’s content, have students complete *Student Activity Book* page 4.



Student Math Handbook: Students and families may use *Student Math Handbook* pages 105–108 for reference and review. See pages 145–146 in the back of this unit.

Name _____

Date _____

Pockets, Teeth, and Favorite Things

Bar Graph (Vertical)

Title: _____

