

# Exploring Probability

Open a bag of M&M's® or other colored candy and sort out by color. Count the number of each and record it on a piece of paper (for this activity we looked only at brown, yellow, and red). In this activity, you will learn how to create a categorical list, then convert your data into a pie chart so that you can answer the questions below.



## Engage

Create a list on the TI-73 Explorer™ called COLOR.

1. Turn your calculator ON and press **LIST**
2. Press the **▶** to find the first unused list
3. To name the list color, press **2nd** **[TEXT]** and use the arrow keys to spell COLOR, pressing **ENTER** after each letter
4. When finished, select **Done** and press **ENTER**
5. Press **ENTER** again, and the list will be named
6. Press the **▾** to get COLOR (1) =  
Color (1): is the first element in the list named Color

## Explore

Enter the colors of the M&M's into the list.

1. Press **2nd** **[TEXT]** to make this a categorical list, then enclose the first element in quotation marks
2. Select the quotation mark, then press **ENTER** and spell out "BROWN," pressing **ENTER** after each character
3. Press the **▾** to move to Done and press **ENTER**
4. Press **ENTER** again and BROWN will be pasted on the calculator screen under COLOR (the first element in the list under color)
5. Continue this process until you have entered all the colors
6. Using the arrow keys, move to the top of the list and create a list called DATA, using the text editor just as before

Continued on back

L3	COLOR	----	4
-----	████████		
COLOR(1) =			

L3	COLOR c	----	4
-----	BROWN		
	RED		
	YELLOW		
-----	████████		
COLOR(4) =			

L3	COLOR c	DATA	5
-----	BROWN	10	
	RED	12	
	YELLOW	14	
-----	████████	████████	
DATA(4) =			

# Exploring Probability

- Press  $\square$  to enter the first element in the list
- Enter the number of each color in this list, and press  $\text{ENTER}$  after each number

## Extend

Now that you have your data entered into a list, create a circle graph to see which color M&M<sup>®</sup> we have the most of.



- Make sure that equations are empty and plots are off
  - To clear equations from the  $\text{Y=}$  menu, press  $\text{Y=}$ , then highlight the first variable or constant in the expression and press clear
  - To turn plots off, press  $2\text{nd}$  [PLOT] and select the plots that are ON by highlighting the number and press  $\text{ENTER}$ . Then  $\square$  to Off and  $\text{ENTER}$
- Press  $2\text{nd}$  [PLOT]
- Select **Plot 1** and press  $\text{ENTER}$
- Press  $\text{ENTER}$  to highlight **ON**
- Press  $\square$   $\square$  to move to the circle graph  $\odot$ , and press  $\text{ENTER}$  to select it
- Arrow to CategList to choose COLOR, press  $2\text{nd}$  [STAT], use the arrow to move down to COLOR, and press  $\text{ENTER}$
- Repeat step 6 for Data List, but this time select the list named DATA and press  $\text{ENTER}$
- Arrow to Percent and press  $\text{ENTER}$
- Press [GRAPH] to see the circle graph
- Press [TRACE] and use the arrow keys to explore your circle graph

What is the probability of getting a yellow?

What is the probability of getting a brown or red?

Is it more likely that you will get a yellow than it is to get either a brown or red?

