Peer to Peer

Modeling SKILL: 384 **NAME:**_____

Practice Standard: Reason abstractly and quantitatively

INTRODUCTION

READ THIS PAGE INDEPENDENTLY AND DO THE WARM-UP WHILE YOU'RE WAITING FOR YOUR PARTNER(S).

Warm-Up Your Math Mind.

Dora recorded the temperature at 12 p.m. for 2 weeks. Using the data, fill out the frequency table below.

55°, 72°, 65°, 70°, 68°, 75°, 72°, 59°, 63°, 67°, 68°, 74°, 79°, 82°

Temperature (°F)	Frequency
50-59	
60-69	
70-79	
80-89	

Which interval occurred **most** frequently? _____

What is this skill?

This skill is about reading, writing and interpreting data in histograms and cumulative frequency histograms.

What is the learning goal?

Your goal is to create a data set that represents the values on a cumulative frequency histogram.

Why is this learning goal important?

This learning goal is important because histograms are useful for recording large data sets into an organized, easy-to-read format.

Materials needed: pen/pencil only

What mathematical vocabulary is important for this activity?

Data	Information collected and used to analyze a particular concept or situation.
Cumulative Frequency Histogram	A histogram where each bar contains all the data up to and including the data in that bar's interval.
Histogram	A type of bar graph that displays the frequency of data that has been organized into equal intervals; there are no spaces between the bars because the intervals cover all data points.
Set	A well-defined collection of items.

As soon as everyone is ready to go – turn the page and get started!

INFORMATION

Making a Cumulative Frequency Histogram

INDEPENDENTLY, READ THE INFORMATION BELOW OR ONE PERSON CAN READ ALOUD.

Khaliff recorded the price of 14 different treats in a bakery. He will be using the data to make a cumulative frequency histogram.

Bakery Treat Prices													
$1.29	$0.55	$1.99	$2.49	$1.68	$4.25	$0.98	$3.25	$1.45	$4.75	$0.50	$1.99	$2.95	$1.50

First, Khaliff puts the data in a cumulative frequency table.

Cumulative Frequency Table

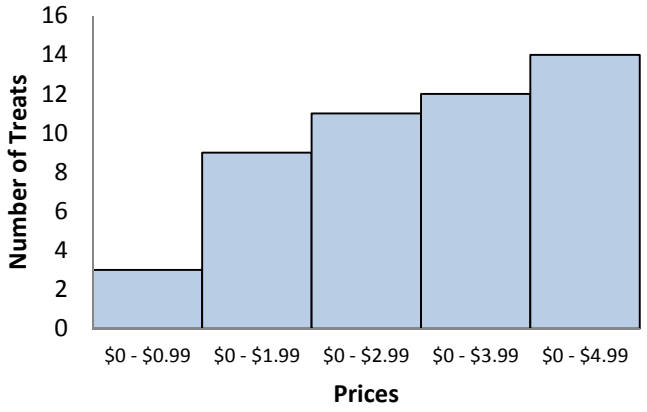
Price	Total
$0 – $0.99	3
$0 – $1.99	9
$0 – $2.99	11
$0 – $3.99	12
$0 – $4.99	14

Every interval starts at $0

Last interval includes ALL data points

Then, Khaliff labels the axes and records the data on the cumulative frequency histogram.

Cumulative Frequency Histogram



If Khaliff wants to know which price range had the most treats, he needs to find the **difference** between each consecutive interval. Since the biggest difference is between $0 – $0.99 (3) and $0 – $1.99 (9), he knows that most treats (9 – 3 = 6 treats) cost between **$1 - $1.99**.

TALK ABOUT IT: If you wanted to know how many treats cost between $4.00 – $4.99, how can you use the cumulatively frequency table or histogram to figure that out?

< 5 minutes

TIP!
This cumulative frequency table shows the **sum** of a price range and every interval that came before it.

TIP!
When graphed, the bars of a cumulative frequency histogram should steadily **increase**.

TIP!
The **difference** of $0 – $1.99 to $0 – 0.99 = the interval $1 – $1.99.

Quick Check:

☐ I have read the information on this page with my group.

Go on to the next page.

PREPARE

Modeling with a Cumulative Frequency Histogram

INDEPENDENTLY, READ THE CHALLENGE GOAL OR ONE PERSON CAN READ ALOUD.

P2P CHALLENGE GOAL

You are given a cumulative frequency histogram that is already filled with data. Using your knowledge of histograms and cumulative frequency tables, create a data set that could have been used to create the histogram. Then, answer the questions based on your data.

INDEPENDENTLY, FILL IN THE PLANNING CHART BELOW.

SOLVING STRATEGY What is one way you might be able to solve this problem? ***Explain in words.*** Don't solve yet!	**FIRST STEPS** What information will you know from looking at the cumulative frequency histogram?
_____ _____ _____ _____ _____ _____	1) 2) 3)

< 5 minutes

Solving Strategy: A plan or idea that you have to help you figure out a problem

Example: "First I'll organize the given data on the histogram into a frequency table and then determine how many points are in each interval."

Quick Check

☐ I've planned out how I'll solve this problem.

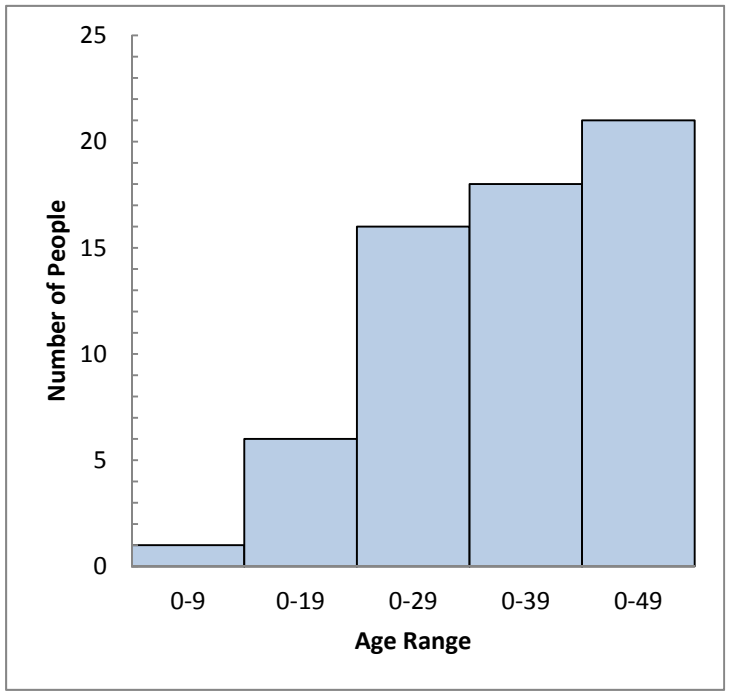
Go on to the next page.

SOLVE

Independent Solving

INDEPENDENTLY, SOLVE OR ANSWER THE QUESTIONS.

Cumulative Frequency Histogram of People in a Movie Theater



Cumulative Frequency Table

Age Range	Total

Possible Data Set

How many people are in the movie theater? _____

How many people are in their twenties? _____

Which age group had 3 people in it? (Circle one) 0-9 10-19 20-29 30-39 40-49

10 minutes

TIP!
Use a piece of paper or another straight edge to line up each bar with the correct number on the y-axis.

TIP!
Remember each interval represents a **sum** of data. You can figure out the amount in each smaller interval by finding the **difference** between each cumulative interval.

Quick Check

☐ I have filled out the frequency table and data set, and answered all the questions.

Go on to the next page when everyone is ready.

SHARE

Talk About Your Learning

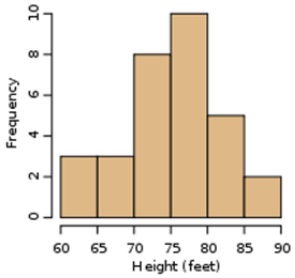
TOGETHER, TALK ABOUT EACH QUESTION. WRITE DOWN THE BEST ANSWER BASED ON YOUR DISCUSSION.

TALK ABOUT IT: Is the graph to the right a **cumulative** frequency histogram? Explain how you know.

_____

_____

_____



TALK ABOUT IT: Explain how you can turn the frequency table below into a cumulative frequency table.

_____

_____

_____

_____

Speed (mph)	Number of Cars
0-20	2
21-40	6
41-60	18
61-80	4

TALK ABOUT IT: Math Practice Standard: Reason abstractly and quantitatively

Your teacher says that 13 students scored between 50-85 on a test and 28 students scored between 50-95. What more specific test score range can you determine from this information? How many students scored in the specific test range? Explain.

_____

_____

_____

_____

10 minutes

Quick Check

☐ We discussed each question.

Skill Check

After your discussions, how well do you NOW understand reading, writing and understanding histograms?

_____

1 = low
5 = high

Quick Check

☐ We wrote our best answers for each question.

Go on to the next page.

REFLECT

INDEPENDENTLY, COMPLETE THE PEER REVIEW.

Peer Review

5 minutes

Write your partner's name: _____

(IF YOU WORKED WITH 2 CLASSMATES, CHOOSE ONE.)

What is one thing you *taught* to your partner? Explain.

_____

_____

What is one thing you *learned* from your partner today? Explain.

_____

_____

Rate your classmate for today's task:	Low			High
• Math work and thinking	1	2	3	4
• Working together with you	1	2	3	4
• Working independently by him/herself	1	2	3	4

Comments:

Quick Check

☐ I completed my peer review.

Go on to the next page.

ENDING PROBLEM

INDEPENDENTLY, SOLVE THE PROBLEM.

Ending Problem

< 5 minutes

The following cumulative frequency histogram shows the temperature over a number of days. Which statement is TRUE based on the data in the histogram?

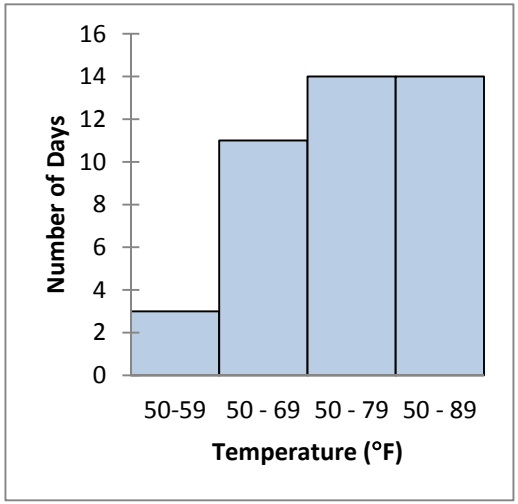
a) The data was recorded over 42 days.

b) There were 11 days with temperatures between 60 – 69 degrees.

c) There were no days with temperatures between 50 – 89 degrees.

d) There were 3 days with temperatures between 70 – 79 degrees.

Cumulative Frequency Histogram



Choose one incorrect answer and change it to a true statement.

_____

_____

TIP!
This question is similar to the types of questions you'll see on your skill assessment.

Clean-Up Check
☐ I've cleaned up my working space and put all materials away.

REFERENCES: New Classrooms, Microsoft ClipArt