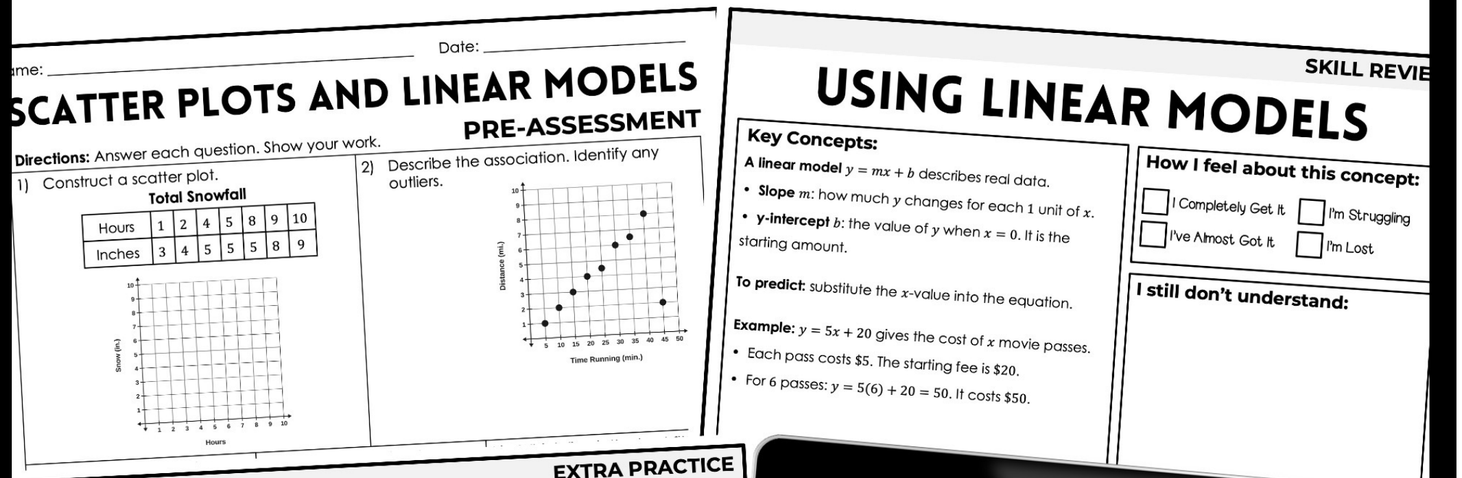
8TH GRADE MATH INTERVENTION UNIT

PATTERNS AND BIVARIATE DATA


Name: _____ Date: _____

SCATTER PLOTS AND LINEAR MODELS

PRE-ASSESSMENT

Directions: Answer each question. Show your work.

1) Construct a scatter plot.

Total Snowfall

Hours	1	2	4	5	8	9	10
Inches	3	4	5	5	5	8	9

Snow (in.)

Hours

2) Describe the association. Identify any outliers.

Distance (mi.)

Time Running (min.)

SKILL REVIE

USING LINEAR MODELS

Key Concepts:

A linear model $y = mx + b$ describes real data.

- **Slope** m: how much y changes for each 1 unit of x.
- **y-intercept** b: the value of y when $x = 0$. It is the starting amount.

To predict: substitute the x-value into the equation.

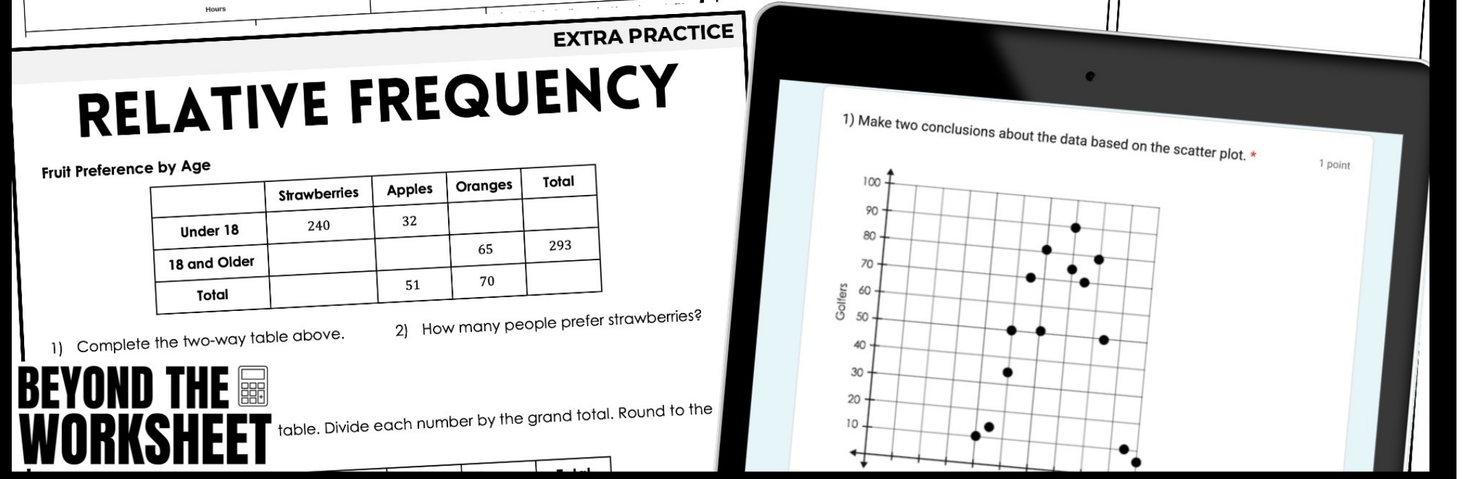
Example: $y = 5x + 20$ gives the cost of x movie passes.

- Each pass costs \$5. The starting fee is \$20.
- For 6 passes: $y = 5(6) + 20 = 50$. It costs \$50.

How I feel about this concept:

- ☐ I Completely Get It
- ☐ I'm Struggling
- ☐ I've Almost Got It
- ☐ I'm Lost

I still don't understand:


EXTRA PRACTICE

RELATIVE FREQUENCY

Fruit Preference by Age

	Strawberries	Apples	Oranges	Total
Under 18	240	32		
18 and Older			65	293
Total		51	70	

1) Complete the two-way table above.

2) How many people prefer strawberries?

BEYOND THE WORKSHEET

table. Divide each number by the grand total. Round to the

1) Make two conclusions about the data based on the scatter plot. *

1 point

Golfers

PRE + POST ASSESSMENTS • 6 TARGETED SKILLS • ERROR ANALYSIS

This 8th grade math intervention unit gives you two pre-assessments that pinpoint each student's gaps, and short, focused pages to reteach only the skills they missed. It covers scatter plots, lines of best fit, linear models, and two-way tables.

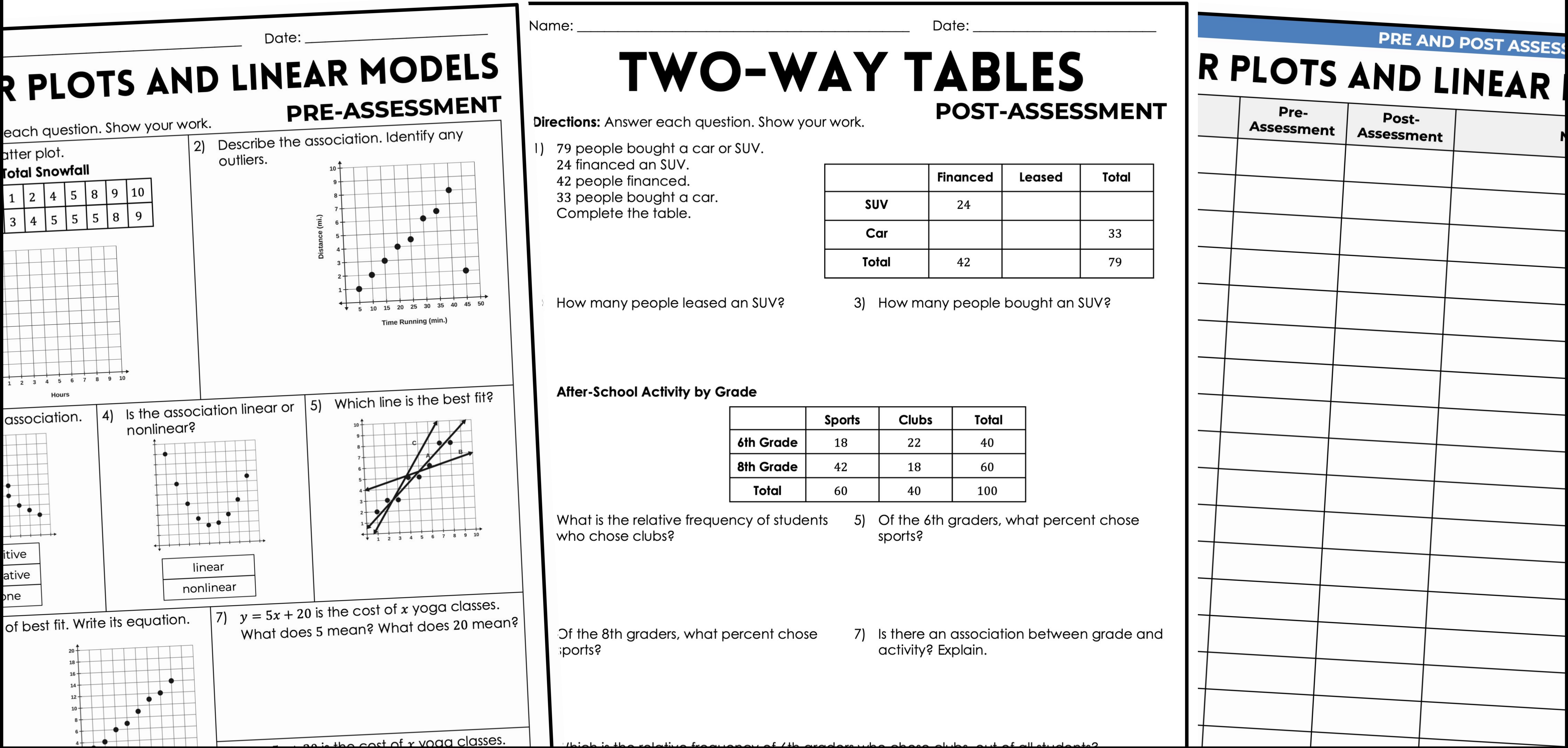
learn more!

WHAT'S INCLUDED:

- **Intervention Planning Sheets**
  Three planning formats are included to help organize intervention groups, targeted skills, and instructional plans.
- **Pre and Post Assessments**
  Use the pre-assessment to identify individual skill gaps and the post-assessment to measure growth after intervention. In print and Google Forms.
- **Skill Review**
  A concise review of the skill with key concepts, guided practice, and a student self-assessment.
- **Extra Practice**
  Additional problems for independent, pairs or small group practice.
- **Error Analysis**
  Students analyze incorrect work, identify the mistake, and determine the correct solution.
- **Progress Tracking**
  Record student performance across the Skill Review, Extra Practice, and Error Analysis pages.
- **Editable Version**
  Adjust wording and problems to perfectly meet your standards or student needs.

Resource	Pages
Resource Details	2 – 4
Intervention Plan Sheets	5 – 7
Tracking Sheets for Assessments	8, 27
Scatter Plots and Linear Models Pre-Assessment	9
Constructing Scatter Plots	10 – 13
Interpreting Scatter Plots	14 – 17
Line of Best Fit	18 – 21
Using Linear Models	22 – 25
Scatter Plots and Linear Models Post-Assessment	26
Two-Way Tables Pre-Assessment	28
Constructing Two-Way Tables	29 – 32
Relative Frequency	33 – 36
Two-Way Tables Post-Assessment	37

PRE & POST ASSESSMENTS



SKILLS REVIEW PAGES

SKILL REVIEW

RUCTING SCATTER PLOTS

h of ordered pairs that shows
ta are related.

for each axis. Count by the
very time.
and give the graph a title.
rom the table as a point (x, y).

t the points.

eatest value. If y goes up to 90,

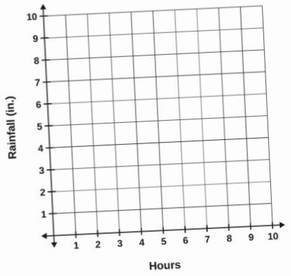
How I feel about this concept:

- ☐ I Completely Get It
- ☐ I'm Struggling
- ☐ I've Almost Got It
- ☐ I'm Lost

I still don't understand:

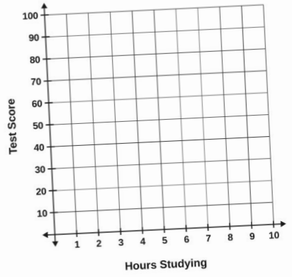
Hours	0	2	3	2	6	5
Score	60	70	80	60	90	80

scatter plot of total rainfall.



2) Construct a scatter plot of study time and scores.

hrs.	%
0	60
2	70
3	80
2	60
6	90
5	80

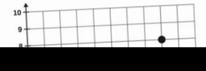


t from the
plotted wrong?

4) The y-values go from 15 to 95. Which scale is best for the y-axis?

5) Fill in the table using the scatter plot.

x	y



SKILL REVIEW

INTERPRETING SCATTER PLOTS

Key Concepts:

- **Association:** how the two sets of data are related.
  - **Positive:** as x goes up, y goes up.
  - **Negative:** as x goes up, y goes down.
  - **None:** the points have no pattern.
- **Strong:** the points are close to a line. **Weak:** the points are spread out.

Linear: the points follow a line. **Nonlinear:** the points follow a curve.

Outlier: a point far away from the others. **Cluster:** a group of points close together.

How I feel about this concept:

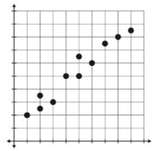
- ☐ I Completely Get It
- ☐ I'm Struggling
- ☐ I've Almost Got It
- ☐ I'm Lost

I still don't understand:

ractice:

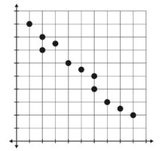
) Describe the association.

positive
negative
none



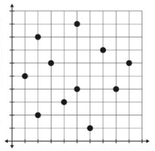
2) Describe the association.

positive
negative
none



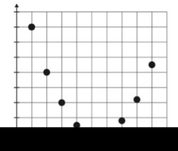
3) Describe the association.

positive
negative
none

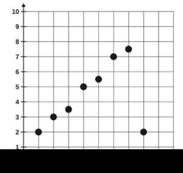


Is the association linear or nonlinear?

linear
nonlinear

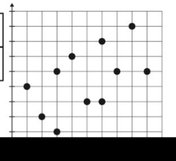


5) Name the outlier.



6) Is the association strong or weak?

strong
weak



NE OF BEST F

hat shows the trend of the data.

the middle of the data.
ne number of points above and

our line. They do not have to be

$\frac{y_2-y_1}{x_2-x_1}$.

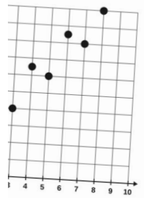
crosses the y-axis. Write $y = mx + b$.
ot just connect the first and last

How I feel abou

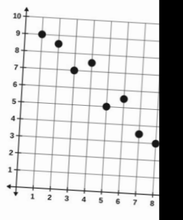
- ☐ I Completely Get It
- ☐ I've Almost Got It

I still don't unde

st fit. Write its equation.



2) Draw a line of best fit. Writ



_____ $y =$_____

st fit?

4) A line of best fit goes through (0,2) and (4,10). Write its equation.

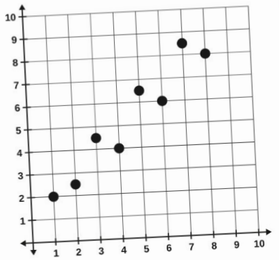
5) 12 points are
plot. About
should be ab

EXTRA PRACTICE

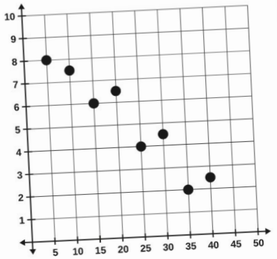
EXTRA PRACTICE

NE OF BEST FIT

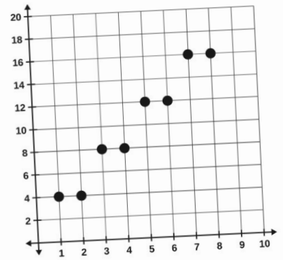
ine of best fit. Write its equation.



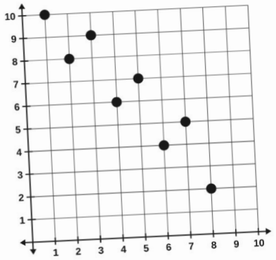
2)



$y =$_____



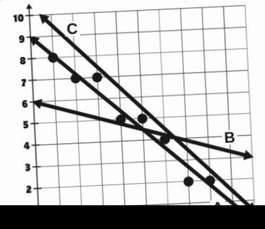
4)



$y =$_____

each problem carefully.

the best fit? Explain.



6) Ari drew his line through the first and last points. Is that always a good line of best fit? Explain.

EXTRA PRACTICE

USING LINEAR MODELS

For #1 – 4: Use the model to answer each question.

1) $y = 3x + 12$ is the cost in dollars to bowl x games. What does 3 mean? What does 12 mean?

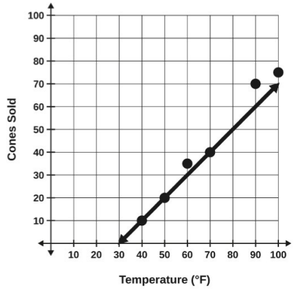
2) $y = 50x + 200$ is Kim's savings after x months. How much will she have after 8 months?

3) $y = -1{,}500x + 18{,}000$ is a car's value after x years. What does $-1{,}500$ mean?

4) $y = 8x + 5$ is the cost of x pizzas with delivery. How many pizzas can you buy for \$45?

or #5 – 8: Read each problem carefully.

5) Use the line of best fit. Predict the number of ice cream cones sold when it is 80°F.



6) Write the equation of the line of best fit in #5. What does the slope mean?

$y = 2x + 60$ is the height in inches of a boy who is x years old. Does the model make sense for a 40-year-old? Explain.

8) A phone plan is \$25 plus \$10 per month. Write a model. What is the cost for 12 months?

E

'RUCTING TWO-WAY

two-way table for each set of data.

math or science, and
0 chose math. 90 chose
se math and art. 110

usic	Art	Total

2) 80 students were asked
or an instrument. 20 do
play both. 22 play an ins

	Instrument	No
Sport		
No Sport		
Total		

ble to answer the questions.

ble.

	Cat	No Cat	Total
Dog	14		40
No Dog		22	
Total	30		

were surveyed?

5) How many people have a dog?

have neither a cat nor

7) How many people have a c
cat?

ERROR ANALYSIS

ERROR ANALYSIS

ATIVE FREQUENCY

the error. Then explain it and solve the problem correctly.

frequency table. Divide by the grand total.

	Car	SUV	Truck	Van	Total
Male	15	28	32	7	82
Female	23	30	17	10	80
Total	38	58	49	17	162

r:

	Car	SUV	Truck	Van	Total
Male	$\frac{15}{38}$	$\frac{28}{58}$	$\frac{32}{49}$	$\frac{7}{17}$	$\frac{82}{162}$
Female	$\frac{23}{38}$	$\frac{30}{58}$	$\frac{17}{49}$	$\frac{10}{17}$	$\frac{80}{162}$

t of all people chose a truck?

er: $\frac{49}{82} \approx 60\%$

3) Of the females, what percent chose a car?

Student answer: $\frac{23}{38} \approx 61\%$

relative frequency of males?

wer: 82

5) Of the males, what percent chose a van?

Student answer: $\frac{7}{162} \approx 4\%$

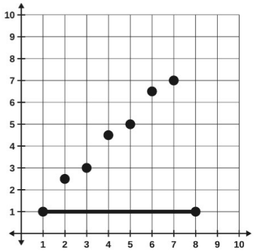
ERROR ANALYSIS

LINE OF BEST FIT

Directions: Identify the error. Then explain it and solve the problem correctly.

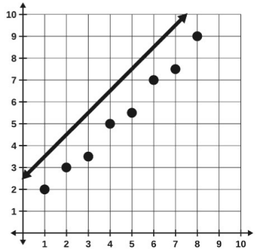
1) Draw a line of best fit.

Student answer:



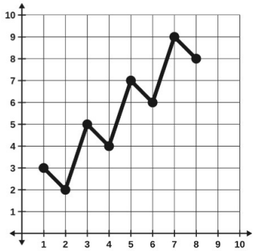
2) Draw a line of best fit.

Student answer:



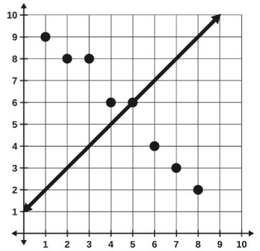
) Draw a line of best fit.

Student answer:



4) Draw a line of best fit.

Student answer:



A line of best fit goes through $(0, 2)$ and $(4, 10)$. Write its equation.

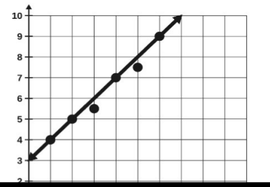
Student answer: $m = \frac{4}{8} = \frac{1}{2}$

$y = \frac{1}{2}x + 2$

6) Write the equation of the line of best fit.

Student answer:

$y = x + 1$



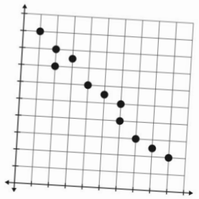
E

PRETING SCATTER

the error. Then explain it and solve the problem correctly

sociation.

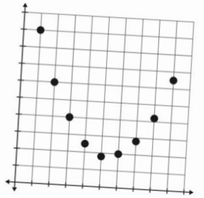
ıe



2) Describe the associatio

Student answer:
No association, because the points are spread out.

linear?



4) Name the outlier.

Student answer:
$(1, 9)$, because it is the highest point.

ı strong association has
›m left to right.

6) A scatter plot with a linear
points that form a perfectly

Student answer: True.

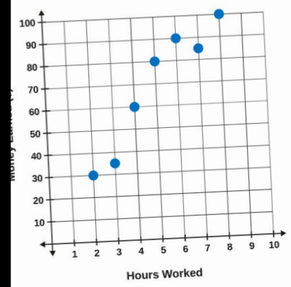
TEACHER PAGES & ANSWER KEY

EXTRA PRACTICE

RUCTING SCATTER PLOTS

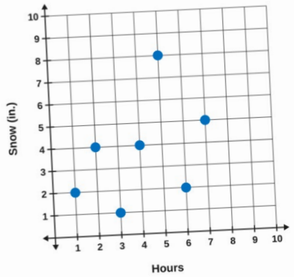
t a scatter plot for each table.

rom waiting tables



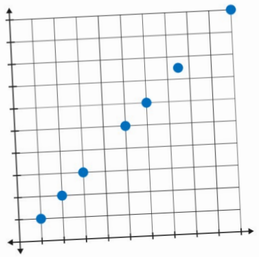
2) Snowfall each hour during a storm

hrs.	in.
1	2
2	4
3	1
4	4
5	8
6	2
7	5



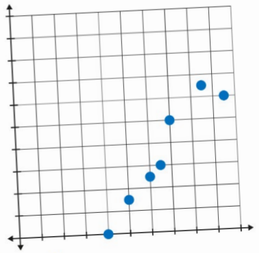
d. Choose a scale and label

ample
cale:
by 4s
by 6s



4) Temperature and ice cream cones sold. Choose a scale and label the axes.

°F	sold
95	60
85	65
70	50
65	30
60	25
50	15
40	0



Sample scale:
both by 10s

each problem carefully.

graph hours of sleep and test
h variable should go on the x-

Hours of sleep.
change the test score.

6) Jon labeled his x-axis 1, 2, 3, 5, 10. Is this a good scale? Explain.

No.
The scale must count by the same amount.

8) The points in a scatter plot are connected

8TH GRADE MATH INTERVENTION PROGRAM

Resource: 8th Grade Math Intervention Unit 5 – Patterns and Bivariate Data

Suggested Class Time: 30 minutes at a time as needed

The Big Idea

- This unit provides **targeted intervention and additional practice** with building and reading scatter plots, drawing lines of best fit, using linear models to make predictions, and organizing data in two-way tables with relative frequency. The unit is split into two sections (Scatter Plots and Linear Models, and Two-Way Tables), each with its own pre- and post-assessment. Each skill review also revisits the earlier skills students need, such as plotting points, choosing a scale, finding slope, and writing percents.
- Use the pre-assessment to identify specific skill gaps, then assign only the skill pages students need. The materials work best in **teacher-led small groups**, but the Extra Practice and Error Analysis pages can also be used for independent practice, partner work, reteaching, or progress monitoring.

Each skill comes with:

- **Skill Review**
  A concise review of the skill with key concepts, guided practice, and a student self-assessment.
- **Extra Practice**
  Additional problems students can complete independently, with a partner, or as continued small-group practice.
  Error Analysis
  Students analyze incorrect work, identify the mistake, and determine the correct solution. This provides an opportunity to uncover misconceptions that may not be obvious from a correct/incorrect answer alone.
  Progress Tracking
  Record student performance across the Skill Review, Extra Practice, and Error Analysis pages to monitor growth and determine next steps.

lso included:

Pre- & Post-Assessments
Use the pre-assessment to identify individual skill gaps and the post-assessment to measure growth after intervention. Print and Google Forms versions are included.
Intervention Planning Sheets
Three planning formats are included to help organize intervention groups, targeted skills, and instructional plans. These can also be used to communicate plans with interventionists, assistants, or other support staff.

GGESTED INTERVENTION FLOW
\ssess → 2. Identify Skill Gaps → 3. Review & Reteach → 4. Practice → 5. Analyze Errors → 6. Reassess

ndards (CCSS)
.SP.1, 8.SP.2, 8.SP.3, 8.SP.4
Gap skills reviewed: 5.G.2, 6.RP.3c, 8.F.4

Progression

equisite Skills	Skills Addressed in This Unit	Skills Students Will Build Toward

8TH GRADE MATH INTERVE

eptions & Teaching Tips

CATTER PLOTS

nts using uneven scales, switching x and y, or connectin
dents write the scale first. Point to the top row of the tab

TER PLOTS

nts confusing a weak association with no association.
ere still an uphill or downhill trend?" Weak means spread

's connecting the first and last points, or letting an outlier
nts above and below the line. They should be about equ

S

switching the meaning of the slope and the y-intercept
happens once? What happens each time?" Once is b.

adding the wrong row or column, or treating a total as a
otal row and column. Check every row and column befo

lividing by the wrong total.
vhom?" The words after "of the" tell which total to use.