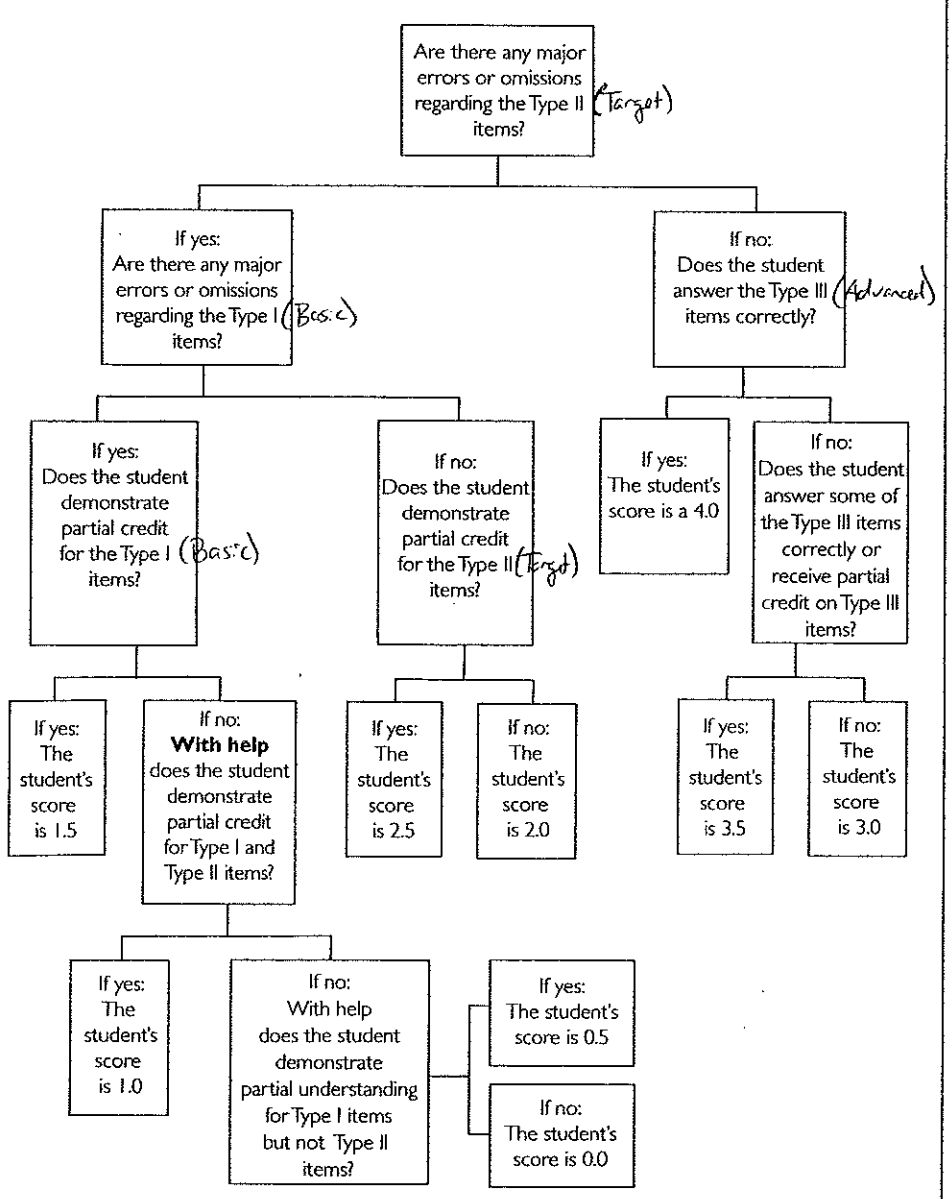
FIGURE 3.13
Scoring Flowchart for Complete Scale



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Type 1 ⇒ Basic Questions/Tasks
Type 2 ⇒ Target
Type 3 ⇒ Advanced (Beyond what is taught)

Standard: Interpret linear Models

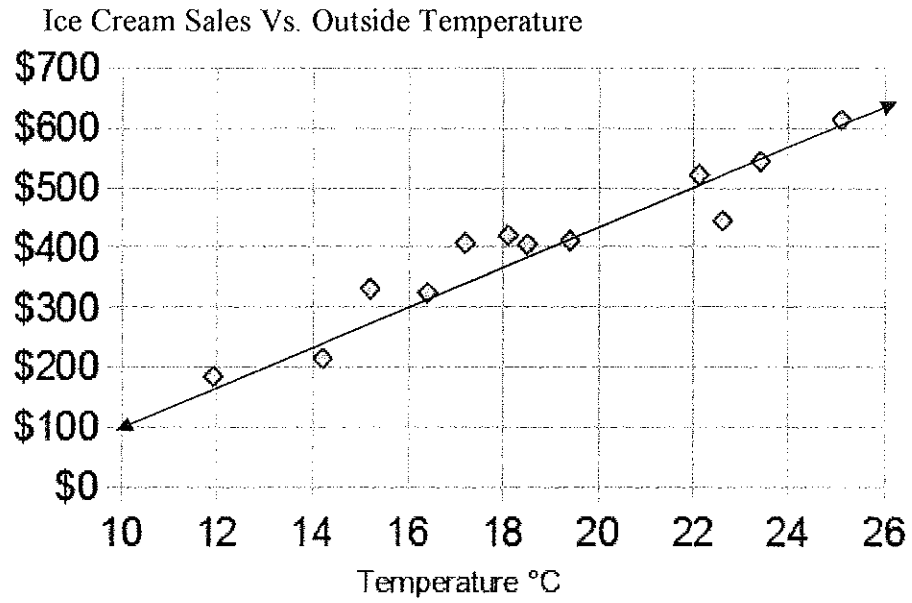
Objective: ~~Represent~~ Analyze data using scatterplots & trend lines

Name: _____

Writing an Equation for a Trend Line
Do Now

1. Write an equation for the given trend line:

Ice Cream Sales vs Temperature	
Temp °C	Sales
14.2°	$215
16.4°	$325
11.9°	$185
15.2°	$332
18.5°	$406
22.1°	$522
19.4°	$412
25.1°	$614
23.4°	$544
18.1°	$421
22.6°	$445



Basic (Type 1)

2. Estimate the correlation coefficient.

3. What does the slope represent?

4. What does the y-intercept represent?

Target (Type 2)

5. Are there any ~~restrictions~~ restrictions on the domain? Explain.

Standard: Interpret linear Models [S-ID.]
Objective: Represent + Analyze data using scatterplots + trend lines

Name:_____

Does Population Affect Residential Energy Consumption?

The following data was culminated from the State Energy Data System. (http://205.254.135.24/state/seds/) There are several sectors where energy can be used. These sectors are residential, commercial, industrial, transportation, and all sectors combined. For this activity, we will only be looking at residential energy consumption.

1. Based on the title, what are the two variables being studied?

Type 1 (Basic)

2. Write a hypothesis about these to variables. (If___ then___ because___.)

Type 2 (Forged)

3. Create a scatterplot of the following data: Use ~~an entire piece of graph paper~~ a spreadsheet for this graph.

Type 1 (Basic)

	2010 population	2009 Total_Consumption (trillion Btu)
Alabama	4,447,100	1907
Alaska	626,932	630
Arizona	5,130,632	1454
Arkansas	2,673,400	1055
Colorado	4,301,261	1452
Connecticut	3,405,565	788
Delaware	783,600	255
District of Columbia	572,059	182
Florida	15,982,378	4295
Georgia	8,186,453	2949
Hawaii	1,211,537	270
Idaho	1,293,953	509
Illinois	12,419,293	3815
Indiana	6,080,485	2623
Iowa	2,926,324	1418
Kansas	2,688,418	1084
Kentucky	4,041,769	1877

4. Does your scatter plot suggest a positive, negative, or no correlation? Explain.

5. Does your scatter plot suggest a strong or weak correlation? Explain.

Type 1 (Basic)

6. Draw a "line of fit" for your data set. Write an equation for this line of fit. Show your work.

7. What does the slope of your equation represent?

8. Use model to predict North Carolina's usage if they have 8,049,313 people.

Type 2 (Target)

9. Does the data support or refute your hypothesis? Explain using complete sentences.

10. Do you think that the other sectors; industrial, commercial, and total, will have the same correlation? Explain your reasoning.

Type 3

Globalization and Health Benefits
Linear Correlations Project

Background Information for Project: (Not required in final product but will help with understanding)

[Questions cut for PD]

Collecting Data and Writing Hypotheses:

1. Collect Health Variable Data by doing the following:

   [Directions cut for PD]

2. Write a hypothesis explain how GDP would affect whatever health data you have collected. [For example, How do you think these variables are related? Are there variables that may be more correlated than others?]

3. Collect GDP Data by doing the following:

   [Directions cut for PD]

Analyzing Your Data:

4. Using excel, analyze your data by doing the following:
   a. Create 2 scatter plots mapping GDP to the variables you chose. (include axis labels, and titles.)
   b. Include the linear regression trend line on the scatter plot.
   c. Include the R^2 value in your scatter plot. (To find correlation coefficient, take the square root of the R^2 value.

   NOTE: Remember that the independent variable's column title should be deleted temporarily when highlighting the data. Otherwise Excel will create a scatter plot that is not correct.

Conclusion:

5. Write up the conclusion about your hypothesis. Cite specific data including the following:
   a. Use specific data points to support or refute your hypothesis.
   b. Cite the correlation coefficient and how it supports or refutes your hypothesis
   c. Cite the slope, include the units, and explain how this supports or refutes your hypothesis

6. Answer the following question: **"Based on your conclusions would an increase of a countries' GDP that is caused by globalization have a substantial impact on health in the world?**

Create your Product:

[Directions cut for PD]

Type 3: #6

7. Question ~~#4~~ assumes that globalization would cause a rise in worldwide GDPs. Research the pros and cons of globalization on www.procon.org and determine if this is a fair assumption.

Basic (Type 1)

Target (Type 2)

Advanced

Globalization and Health Benefits RUBRIC
Linear Correlations Project

Final Product: (must meet expectations in order to be graded)

	Meets Expectations	Does not Meet Expectations
Project Components	All project components are completed and presented.	One or more project components are missing.
Organization	Final product is neat and organized.	Final product is not neat and organized.
On Time	Final product is completed on time.	Final Product is not handed in on time.

Learner Expectation - Researcher - Overall Assessment Grade _____out of 4

	4	3	2	1
Organized Information (Choose and apply an appropriate method of organizing information)	Student organized a vast amount of data in a manner that is appropriate for the type of product.	Student has organized data and it is displayed in final product.	Data is present but slightly disorganized. Formatting, lack of headings, lack of labels, or other problems makes the data hard to be viewed in final product	Data is not organized in a manner that allows for an easy display on the final product.
Evidence Based Conclusions (Formulate an evidence-based conclusion to chosen essential questions)	Student uses 1)correlation coefficient 2) slope 3) specific data to support or refute their hypothesis. All conclusions are correct. AND Student researches the pros and cons of globalization and includes them in final product in a compelling manner.	Student uses 1)correlation coefficient 2) slope 3) specific data to support or refute their hypothesis. All conclusions are correct.	Student is missing either a discussion of 1)slope 2) correlation coefficient or 3) data in final conclusions. OR There are slight flaws in the conclusions being drawn	Student is missing a discussion of two or more of the following items in the conclusion: 1)slope, 2)correlation coefficient, or 3) specific data OR There are major flaws in the conclusions being drawn.

(5)