

# 8TH GRADE

# POWER



# PROBLEMS

## Statistics & Probability

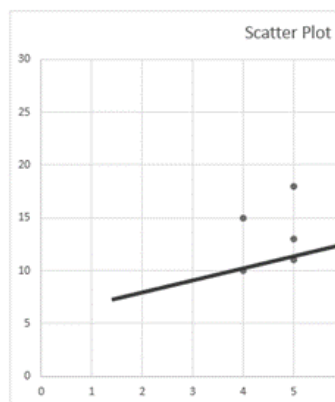
Name: \_\_\_\_\_

Create a scatter plot for the chart below.

X	Y
4	10
5	13
5	11
6	12
7	15
4	15
6	18
6	21
5	18
7	25
7	26
8	27
9	25

Name: \_\_\_\_\_

Lauryne drew the following scatter plot. Describe how well the data fits the line.



Name: \_\_\_\_\_

The two-table below shows which class students feel gives the most homework for the 7th and 8th grades.

Grade	Math	English	Science	History	Health	Total
7 <sup>th</sup>	5	20	7	6	2	40
8 <sup>th</sup>	15	10	3	6	3	37
Totals	20	30	10	12	5	77

What percent of the students said English gave the most homework?

What percent of the students said Science or History gave the most homework?

What percent of the 7<sup>th</sup> grade students said math gave the most homework?



POWER  
PROBLEM  
8.SP.4

# WHAT ARE POWER PROBLEMS?



**PURPOSEFUL** - These problems are meant to keep students focused, while strengthening initiative and perseverance.



**OPPORTUNITIES** - These prompts can be used in a variety of ways. P.O.W.E.R problems can be used to introduce a lesson, spiral review, or as formative assessments.

## WITH



**ENGAGEMENT** - Problems are real word applicable and designed to hook students with interest and presentation. Complexity of problems promotes problem solving skills.



**RIGOR** - Tasks are specifically designed to challenge students and assess conceptual understanding of curriculum versus procedural understanding. Students will need to apply more than just a "formula."

# WHY USE POWER PROBLEMS?

**BUILD STAMINA WITHIN  
YOUR STUDENTS**



## **MORE THAN JUST A COOKIE CUTTER TEXTBOOK APPROACH**

- P.O.W.E.R problems are designed to challenge your students with their open ended presentation. Majority of problems that come from textbooks and workbooks assess procedural understanding of curriculum. Some textbooks even provide step by step instructions where the textbook is thinking for the students and taking away that "productive struggle" for children. When we rob students of that event, we rob them of their ability to reason, problem solve, and see beyond a standard algorithm. P.O.W.E.R problems are meant to show students that there are different ways to answer one question in math. With these tasks students take ownership and are part of the problem solving process versus filling in blanks in a textbook.

# SAMPLE QUESTIONS:

Name: \_\_\_\_\_



POWER  
PROBLEM  
8.SP.2

Create a scatter plot of the data in the chart below.

X	Y
4	10
5	13
5	11
6	17
7	5
4	15
6	18
6	21
5	18
7	25
7	26
8	27
9	25

Name: \_\_\_\_\_



POWER  
PROBLEM  
8.SP.4

The two-table below shows which class students feel gives the most homework for the 7th and 8th grades.

Grade	Math	English	Science	History	Health	Total
7 <sup>th</sup>	5	20	7	6	2	40
8 <sup>th</sup>	15	10	3	6	3	37
Totals	20	30	10	12	5	77

What percent of the students said English gave the most homework?

What percent of the students said Science or History gave the most homework?

What percent of the 7<sup>th</sup> grade students said math gave the most homework?

# HOW TO USE POWER PROBLEMS

YOUR KIDS. YOUR  
CHOICE. FLEXIBILITY.



**TO INTRODUCE A LESSON** - P.O.W.E.R problems can be used to introduce a new skill. In this case your students will experience a "productive struggle." Their problem solving skills and prior knowledge will kick in. Often times most of my students will have the incorrect answer or no answer at all. I then have someone explain their method/reasoning and allow my students to critique their peer's answer. This makes for great accountable talk discussions. If I see that most students do not have an answer I will assist the class in getting to a specific point and then allow them to finish independently.



**SPIRAL REVIEW** - Avoid your students forgetting standards by using P.O.W.E.R problems to spiral review previously taught lessons.



**FORMATIVE ASSESSMENTS** - You can use these problems to assess mastery and levels of understanding.