Integrated Math 1 (Middle School and High School)

Major Learning Targets for This Course

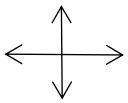
Linear and Exponential Functions

Students will use tables, graphs, and equations to represent situations that can be modeled by a linear or exponential function.

"I can read a word problem and represent it with a table of values, a graph, or an equation."	"I can solve a linear equation (or system of linear equations) and understand if my answer makes sense."	"I can graph a linear equation and understand what the slope and y-intercept mean in terms of the situation that it models."

Example Task:

Situation: A photobook company charges a $12 flat fee for a photo book, plus $1 for every page in the book. Use *C* to represent the cost of the photobook, and *p* to represent the number of pages.

Create a Table	**Draw a Graph**	**Write an Equation**
p | | | | ***C*** | | | |		

How much would it cost for a photo book with 16 pages?
Does your answer make sense? How do you know?

Statistics

Students will show, summarize, and analyze statistical data.

"I can create a scatter plot to show my data points."	"I can find a line of best fit for my data."	"I can make sense of my data, look for trends, and make inferences and predictions."

Example Task:

A ring toss game at a fair is set up so that only a small percentage of players win. Each day, the fair records the number of players and the number of winners. The data is in the table below.

Number of players	Number of winners
11	2
36	6
36	5
39	8
35	7
18	3
10	1

1) Create a scatter plot of the data
2) Write an equation for a line that best fits the data
3) Interpret the slope and the y-intercept in terms of the context
4) If 100 people played the game, predict how many would win

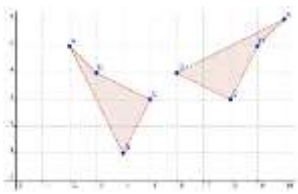
Geometry: Congruence and Constructions

Students will understand transformations, congruence of figures, and do geometric constructions.

"I can rotate, reflect, translate, and dilate figures in the coordinate plane (x/y grid)."	"I can determine whether or not two figures are congruent to one another (have the same size and shape)."	"I can use tools (e.g. technology or a straightedge and compass) to perform various geometric constructions."

Example Task:

Are the two figures congruent? How do you know? If they are, describe a series of transformations that proves they are congruent.



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Expected Behaviors in Math Class

Students will…

- Make predictions and estimations
- Decide if their answer is reasonable
- Use examples and counterexamples to justify a conclusion
- Explain their thinking and their process to solving a problem
- Apply mathematics to solve problems in everyday life
- Consider available tools to help them solve problems (including hands-on tools and technology)
- Use technology to explore and deepen their understanding
- Communicate ideas clearly verbally and in writing, using math vocabulary when appropriate
- Look for patterns and shortcuts

How Can I Support My Student in This Course?

1. Ask Questions

- When your student is stuck, ask him/her questions like:
  - "How do you know?"
  - "Have you seen a similar problem like this before?"
  - "Does your answer make sense?"
  - "What is the problem asking you?"
  - "What information do you need to solve this question?"

2. Encourage Your Student to Ask Questions

- You don't need to be able to answer every question that students may come up with; encourage your student to write down his/her question to bring to a teacher or peer the next day

3. Ask Your Student to Draw the Math Problem

- All mathematics can be represented visually; visual representations help students understand the concepts
- Encourage color coding

4. Encourage Multiple Representations of the Problem

- Ask your student to solve the problem in a different way, and to make connections between the different representations

5. Value Mistakes

- Students are learning when they are making mistakes; create an environment where your student feels comfortable making a mistake and learning from it

6. Don't Simply Tell Them the Right Answer

- Once students are aware that their answer is right, they are more likely to stop thinking about the math
- Instead of telling them the right answer, ask them a question (see #1) or have them draw a picture

7. Praise Effort

- When your student gets a right answer, acknowledge how hard they must have worked and practiced
- When your student is stuck, acknowledge that sometimes math is challenging and that if they continue to practice and work hard, they will improve

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