DISASTER ROUTE

LESSON OVERVIEW

Grade Levels: 3-5

In this lesson students will learn how to read a map using coordinates and cardinal directions to help their "meeple" move through a city to escape a disaster and get to a place of rescue.

STANDARDS

CCSS.ELA-LITERACY.SL.3-5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3-5 topics and texts, building on others' ideas and expressing their own clearly.
CCSS.MATH. CONTENT.K.CC.B.4	Understand the relationship between numbers and quantities: connect counting to cardinality.
CCSS.MATH. CONTENT.K.CC.A.2	Count forward beginning from a given number within the known sequence.

OBJECTIVES

- Students will discuss different scenarios from the *I Survived* books by Lauren Tarshis.
- Students will use cardinal directions in order to navigate a map.
- Students will calculate distances by counting.

MATERIALS

- Plastic "meeple" or other game marker
- Graph handout

PROCEDURE

STEP 1: In a number of the I Survived books, the key to survival for the main character is finding a route out of the disaster-stuck city (or steamship) by knowing landmarks, maps or blueprints (*The Great Chicago Fire, 1871; The Destruction of Pompeii, AD 79; The San Francisco Earthquake, 1906 & The Sinking of The Titanic, 1912*). Discuss with the students how this was helpful to these characters.

STEP 2: Using a projector or the whiteboard, explain cardinal directions (North, South, East, West) and how they can be used to read a map. Show the x, y coordinate grid and give examples of directions (e.g. Go North 4, East 2, then South 7). Show a map of Chicago or San Francisco and give examples of directions (e.g. Go North 4 blocks, East 2 blocks, then South 7 blocks).

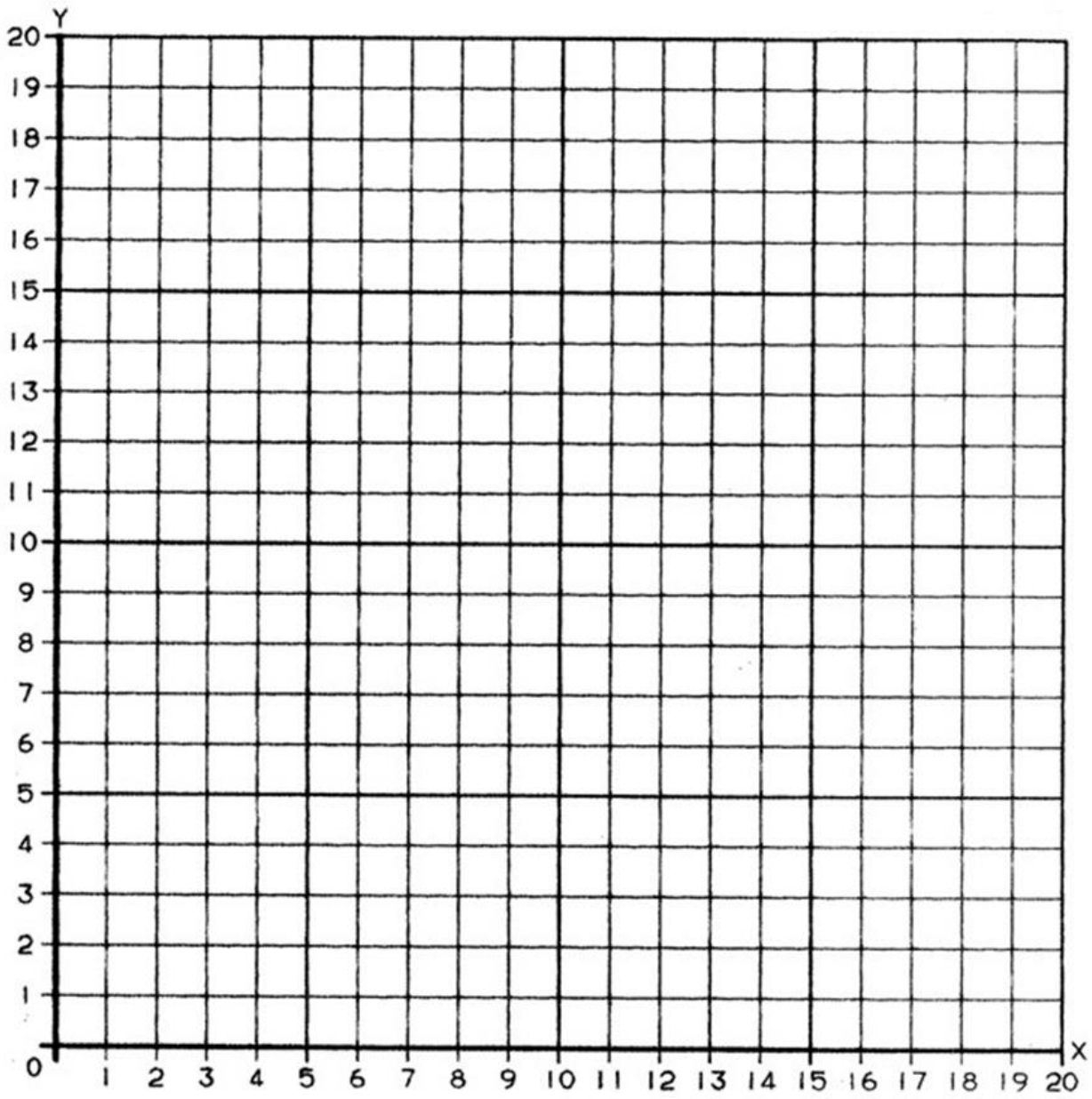
STEP 3: Give each student a plastic "meeple" or other game marker. Using the coordinate grid handout, tell the students you are going to give them a series of directions and they are to move their meeple the specified number of 'blocks' on both the X and Y axes to get to a place of safety. For example:

1. Start at (4,4)
2. Move two blocks east
3. Move one block south
4. Move four blocks east
5. Move five blocks north
6. Move one block west
7. Move 4 blocks north
8. Move 6 blocks east
9. Students then report their ending coordinates (15,12)

STEP 4: OPTIONAL: Depending on the grade level, incorporate addition and subtraction or multiplication and division in the directions (e.g. Go North 8-4, then East 5x6, then North -1x1).

STEP 5: Now have the students work in pairs. Have the students each make up a list of coordinate moves for their partner. Each takes a turn reading the instructions while the other student moves their meeple accordingly. The students then switch roles.

STEP 6: Discuss as a class how each pairing of instructions went: were the instructions successful? Did the partners successfully arrive at the correct ending coordinates? Discuss the real world reasons behind why knowing how to read a printed map and navigate by cardinal directions is important.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	Target (3)	Meets (2)	Partially Meets (1)	Does Not Meet (0)
USE OF MANIPULATIVES	Student always listens and follows directions only using manipulatives as instructed.	Student typically listens and follows directions, using manipulatives as instructed most of the time.	Student sometimes listens and follows directions, using manipulatives appropriately when reminded.	Student rarely listens and often plays with the manipulatives instead of using them as instructed.
NAVIGATING MAP DIRECTIONS	Explanation/solution shows complete understanding of the mathematical concepts used to solve the problem(s).	Explanation/solution shows substantial understanding of the mathematical concepts used to solve the problem(s).	Explanation/solution shows some understanding of the mathematical concepts needed to solve the problem(s).	Explanation/solution shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.
COLLABORATION	Works well with others and discusses ideas in a fair, respectful, encouraging way and is considerate of the feelings of others.	Works okay with others and discusses ideas in a fair, respectful way, but may not have been encouraging. Considers the feelings of others.	Works with others, but did not contribute a fair share of work OR was discouraging and did not consider the feelings of everyone.	Did not work well with others and/or discusses ideas in an unfair, disrespectful way.
REQUIREMENTS	Meets all of the requirements for the project.	Meets most of the requirements for the project.	Meets some of the requirements for the project.	Does not meet the requirements for the project.
DEMONSTRATION OF KNOWLEDGE OF CONTENT IN DISCUSSIONS AND ACTIVITIES	Does a great job showing an understanding of the content covered in class.	Does an okay job with showing an understanding of the content covered in class.	Tries but has a difficult time showing an understanding of the content covered in class.	Does not show an understanding of the content covered in class.
Total				/15