Topic: Blast the Meteor

Teacher Information

Time Allowance

45 min.

Background

This game is similar to the game "Battleship" but uses a map grid. Each set of two players should sit facing each other with a low visual shield (like a book) propped up between them. After the students have played the original game provided, allow them to create their own meteor fields and play again. Number and size of meteors may vary. Encourage the students to decide on boundaries for these.

Materials

meteor game sheets graph paper pencils

Preparations

- 1. Instruct students on how to read a graph with X and Y coordinates.
- 2. Explain important of using a graph to locate stars.
- 3. Discuss the relationship between a map of Earth and map of stars.
- 4. Pass out student page(s) and materials.
- 5. Allow students to complete activities.

Blast the Meteor

Student Worksheet

Read the following

Your mission is to locate and destroy meteors that are threatening the Space Station. You must find and destroy your partner's three meteors to win and save the day!

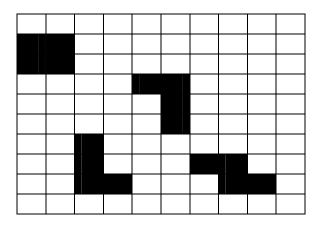
Procedures

- 1. Sit opposite your partner with a notebook or other visual shield between you and your partner.
- 2. Draw 3 meteors, using 4 touching squares for each meteor. Your partner will do the same.
- 3. Call out a coordinate you think involves a meteor. (You must locate all sections of the meteor before it is destroyed.)
- 4. As you get a hit on the meteor, fill in that space.
- 5. If you miss, then play passes to your partner, who is also searching for the three meteors printed on your game sheet.
- 6. As you call out each coordinate to your partner, mark the location on your paper with a small X so you can avoid calling the same location twice.
- 7. The game is over when one person has found all three meteors on the other person's page.

Options

You may want to get a sheet of graph paper and play again. This time make up your own Meteor Game Sheet. With your partner, decide on common size and number of meteors for example: 5 meteors, none smaller than 4 squares. Have fun!

Sample Meteoroids



Blast the Meteor Student Worksheet

Player A

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Blast the Meteor Student Worksheet

Player B

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Star Wars: Battle of Visual Magnitude Teacher Page

Background:

When astronomers discuss the brightness of stars, planets and meteors, they often refer to "magnitudes." Magnitudes were introduced by the ancient Greeks who looked at the sky and divided the stars they saw into six brightness groupings. They ranked the brightest stars as 1^{st} magnitude, and the dimmest stars as 6^{th} magnitude. Stars of intermediate brightness were ranked 2^{nd} , 3^{rd} , 4^{th} , or 5^{th} magnitude, where larger numbers denote dimmer stars.

This method of describing the brightness of stars and planets is still in use today. Of course, the ancient Greeks had no telescopes, and so could only see stars as dim as 6th magnitude. Today we can see stars with ground-based telescopes fainter than 22nd magnitude. That's a dim star! There are also objects in the sky brighter than 1at magnitude. For example the star Vega has a magnitude of zero. The planet Jupiter has a magnitude of -3. The full moon has a magnitude of -13, and the Sun comes in at a blazing -27! Negative magnitudes mean that the object is very bright.

When astronomers observe a meteor, they try to estimate its brightness by comparing it to other objects in the sky. If a meteor is as bright as Jupiter, it has a magnitude o f-3. If it's as bright as the full moon and casts shadows on the ground, it has a magnitude of -13.

The magnitude sale is logarithmic. So is the human eye. To the ancient Greeks, who looked at the stars with their eyes and nothing else, a sixth magnitude star appeared to be 6 times dimmer than a 1st magnitude star. Nowadays astronomers can use precision instruments to measure the brightness of stars. They've discovered that if two stars differ by one magnitude, then the brighter star is actually 2.5 times more intense than the dimmer one. Even though the magnitude scale is not a linear one, it's very usefuol when you're observing the sky with the naked eye.

This is a highly motivational means of familiarizing students with an intrinsically confusing but important scale.

Materials:

activity sheet for each student set of cards for each pair of students

Preparation:

- 1. copy card page on cardstock, then cut apart (optional: color and/or laminate cards)
- 2. Distribute the activity sheet and read the description of the activity.
- 3. Pass out the cards and review the values.
- 4. Do a sample "battle."
- 5. Let them play!

Student Name	Team Name
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Star War: Battle of Visual Magnitudes

Scientists say that the Yukon fireball had a visual magnitude of -26. Huh? That means it was nearly as bright as the Sun. "Magnitudes" are a system that astronomers use to describe the brightness of stars, planets, and meteors.

Depending on the time of year, one of the brightest stars in the night sky is Arcturus. It gets a rating of 0 (zero!). That is bright. The North Star, Polaris, is not as bright. It is rated 2. A very faint meteor that can only be barely seen with the naked eye (no telescopes!) gets a rating of 5. The bright Sun shines down at magnitude -27.

Get the idea? Smaller numbers mean brighter stars. Negative numbers mean really bright stars!

You can become familiar with the magnitude scale by using the "Star Wars" cards to play war! You will need to pay close attention to the scale. A star with a negative magnitude is much brighter that a zero or a two!

Play the same way that war is played. If you have trouble with a partners that is trying to wait until you flip your card before he/she flips hers, try this; both of you chant "One, Two, Peekaboo!" and both flip the cards as you say peekaboo. The person who flips the brightest card takes possession of both cards. If you both flip the same magnitude, each person lays one card face down and then flips a second card face up, the winner takes all six cards. Have fun!