Name _____

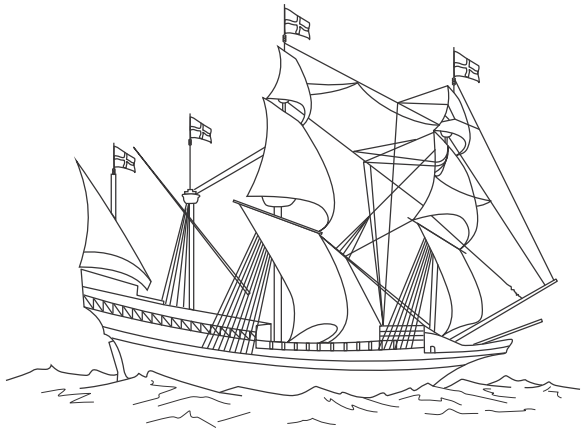
Pick a Project

Project 13A

The Wreck of the *Atocha*

Have you ever dreamed of finding a treasure? In 1985, a team of treasure hunters led by a man named Mel Fisher did exactly that. After a 16-year search, Fisher and his team of divers found the *Atocha*, a Spanish treasure ship that sank off the Florida Keys in 1622. At the time of her sinking, the *Atocha* carried a cargo of copper, silver, gold, tobacco, and gems. She was supposed to dock in Cuba but never made it to port. All of the treasure sank with the ship.

When the treasure was finally recovered after more than 200 years under water, the value of the haul was estimated at $400 million!



There is usually very little information for treasure hunters. Part of the thrill of hunting treasure is using clues to lead you to the treasure. What kind of treasure hunter would you be?

Your Project Write a Treasure Adventure Mystery Story

Write a mystery story that includes a main character who is hunting for lost or sunken treasure. Create clues in your story that your readers will have to solve by evaluating math expressions. For example, your story can tell the number of steps your main character took to the north, or the number of feet that he had to dive. You can use your math book for ideas.

Share your story with the class.

Name _____

Pick a Project

Project 13B

Origin of Games

Have you ever played checkers, chess, or dominoes? These games are very old. Chess might have come from an Indian game that was played on a square board of 64 squares, with 8 rows of 8 squares. Games similar to checkers were played in the days of the early Egyptian pharaohs. Games like checkers were also mentioned by Greek writers more than 3,000 years ago. Dominoes may have originated as all the possible combinations of two dice.

Typically, games are designed and played for fun. Sometimes games are made to be both fun and educational. If you were a game designer, what kind of game would you make?

Your Project Design a Game Using Dominoes

Create a game using one set of double-six dominoes and sticky notes or sticky nametags. Choose a domino, write an expression on the sticky that is equal to the sum of the dots, and stick the paper on the plain side of the domino. For example, if the domino is a five and a two, you could write "product of two and three plus one," or "$2 \times 3 + 1$." Decide on the rules, number of players, and scoring. Write the procedures for the game and play the game with a friend.

Name _____

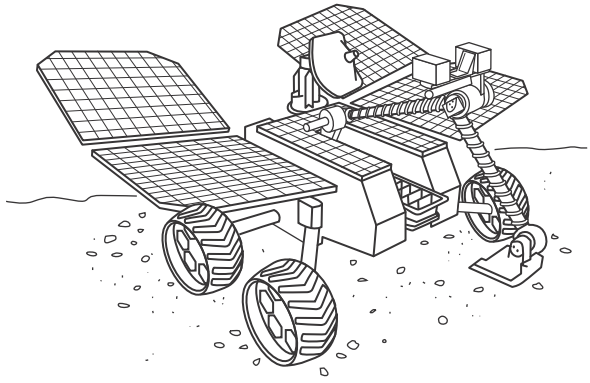
Pick a Project

Project 13C

Proper Procedures

What went wrong? That's the question European space scientists asked themselves in October 2016. That is when their Mars lander crashed on the surface of the red planet. Sadly, the reason the lander failed was because of data errors in its computer.

Things started to go wrong about three minutes after the lander entered the Martian atmosphere. At that time, the lander deployed its parachute. But instead of landing softly, the lander began to spin. The spin confused the lander's control-system software. Its computer made an error in estimating exactly how far the lander was above the surface. The thrusters (jets that slowed the landing) should have fired for 30 seconds, but fired for only 3 seconds. As a result, the lander crashed.



Your Project Program a Robot

Many of the tasks we do every day require a certain set of steps done in a particular order. We may even take these steps for granted because we perform these tasks so often. Tying your shoes is an example. You probably tie your shoes without even thinking about the steps you go through.

Suppose you are an engineer, and need to program a robot to perform a task. What instructions would you give it? What order would those steps be in? Would you make any assumptions about what your robot already knows?

Design a task for your robot, and then provide the necessary set of instructions needed. Use numerical expressions and the order of operations in your instructions. For example, you could tell your robot to walk forward $2 + 3 \times 4$ steps.

