Homerun Math

Content Objectives:
Students will reinforce math skills with a fast-paced, fun math game.

Language Objective:
Students will work in teams and share their answers by communicating in a positive and effective manner.

Materials List:
* Math facts flash cards
* Chalk board or white board (to keep score)

Teacher Preparation:
Go over the lesson. Explain to the students some of the basic rules (seen in step #1) and the amount of innings.
To play the game, arrange students into two teams. Push desks back and form a baseball diamond. Set up home plate near a board or chart so, as students cross home plate, they can record the runs they score.

Directions:
When the first team comes to the plate, provide a math problem for the first "batter" to solve.
a. This game can be used to reinforce any math computation skill. If you use it to reinforce simple math facts, however, the pace of the game will be quicker than if you use it for more complex computations.
The play should follow these rules:
a. If the first batter solves her problem correctly, she is awarded first base.
b. If the second batter solves his problem correctly, he takes first base and the runner on first moves to second.
c. If the third batter gets her problem correct, the runners on first and second advance to second and third.
d. If the fourth batter answers incorrectly, he records the team's first out and the runners do not advance.

e. If the fifth batter answers correctly, she takes first base and the other runners advance. The runner on third crosses home and records on the chart or board a run for her team.
f. When the team records three outs, the other team gets its first chance to "bat."
Once the game ends, tally the score to find out which team wins!
Gary Hopkins lesson "Homerun Math" at Education World

Discussion:
In pairs, have participants share their strategies for finding solutions to the math problems.

Adaptations:
* To slow the pace of the team changes, give each team four or five outs instead of three.
* Arrange students into three teams instead of two.
* Set a time limit for students' responses.
* Assign values to questions based on their difficulty. Easy questions score a base hit (single), more difficult questions score a two-bagger (double), even more difficult questions score a triple, and the most difficult questions of all score home runs. Allow students to choose the difficulty of the questions they answer.

Clean Up: (5 minutes) Have all students help clean up all materials and return the space to its original set-up.

Marshmallow Catapult

Content Objective:
Students will:
- Build a catapult and measure distance of projectiles.

Language Objective:
Students will:
- Identify factors that impact the trajectory and distance a projectile travels.

Materials List:
Bamboo sticks (small skewers)
Large marshmallows
Mini marshmallows
Plastic spoons (cheap white kind)
Thin rubber bands
Masking tape
Hula hoops
plates

Teacher Preparation:
In this activity students will work in groups to create a catapult from bamboo sticks, marshmallows and plastic spoons. They will modify their catapult in order to produce the best launch possible. Kids will have a great time launching mini marshmallows across the room while learning about potential and kinetic energy.

Directions:
1. Create a triangle with the skewers. Join the ends with one of the large marshmallows to design a large triangle.
2. Add a pyramid to your triangle. With the triangle laying on a flat surface, build a pyramid above the triangle.

3. Create your catapult launcher. Tape the plastic spoon handle to the end of another skewer. Wrap the tape around the spoon several times to secure tightly (this spoon will see a lot of action).
4. Place the thin rubber band around the top marshmallow. Lay the rubber band over the marshmallow that has topped the pyramid. Allow the band to just lay there.
5. Slide spoon skewer through the rubber band so that it is being supported by the rubber band. Pierce the end of it on the marshmallow at the base.
6. Use mini marshmallows as your "launching rocks." You can also use other small sweets or items -anything that will fit inside the spoon. Hold the base as you pull the spoon back gently against the tension of the band.
Tips:
* Allow catapults to sit for marshmallows to harden slightly.
* Use different weighted objects to "launch"

Extension: use hoola hoops as targets, have students hypothesize what effect changes in the catapult will have on the marshmallow's trajectory and distance, have them record their findings.

Discussion Questions: Identify factors that impact the trajectory and distance a projectile travels.