

TOSSING INVERSE RELATIONS

Purpose: Students will demonstrate knowledge of math skills by solving mathematical equations and providing all of the inverse relationships for that equation. Students will also model their tossing skills.

Suggested Grade Level: 2 - 3

Math SOL: Computation and Estimation 2.9, Patterns, Functions, and Algebra 3.20

Equipment:

1. Four balls or bean bags
2. Four cones
3. Four white boards with dry erase markers
4. Approximately 20 index cards
5. Bucket/crate

Advance Preparation:

1. Place a bucket/crate in the middle of the playing area.
2. Place 4 cones equal distance away from the bucket – as far away as the skill level of your students (4 corners of the room).
3. Place a ball/bean bag made for tossing at each cone.
4. Write an equation on each index card and place it in the bucket.
5. Put students in 4 groups and have each group stand in line at one of the cones.

Directions:

1. Have the first student in each line toss a ball/bean bag into the bucket.
2. If the ball/bean bag misses the bucket, the student retrieves the ball/bean bag and gives it to the next student in line. Play continues until one person lands the ball/bean bag in the bucket
3. When a ball lands in the bucket, that student retrieves the ball/bean bag and one of the equations from the bucket and returns to his/her team.
4. Have the student write the equation on the team white board and then, as a group, have them solve the problem.
5. Tell the student who wrote the equation on the white board to pass the marker to someone else on the team and have that person write one of the inverse operations that goes with the problem. Play continues until all team members have written down one of the 4 operations listed. For example, index card reads $56 + 32 = \underline{\quad}$. The first student solves the problem on the white board and hands the marker to the next student who writes $32 + 56 = 88$. The next student writes $88 - 32 = 56$ and the last student writes $88 - 56 = 32$.
6. Tell the students to raise their hands when their problem is complete. You then go to the group and check their answers.
7. Give 4 points to the first team to finish, 3 points to the second team, 2 points to the third team, and 1 point to the last team to finish.
8. Begin round 2 when all teams have finished.

Teaching Suggestions:

1. Tell students to use an underhand toss.
2. Tell students to stay in order.

3. Remind students that once the toss is made, the next toss does not occur until AFTER the teacher checks the teams white board.
4. Some teams will take longer than others. If the waiting time is too long, tell teams that have finished to begin their next round.
5. Use a large bucket and small balls or bean bags so that students will succeed in getting balls/bean bags into the bucket.

Modifications/Variations:

1. Give a bucket to each group with the same equations in each bucket. Teams toss to their own bucket instead of a “community” bucket. When all cards are gone from team’s bucket they are done.
2. Give each team a point for each problem it finishes, instead of for finishing first, second, etc., so the team that completes the most problems within the game time wins the most points.
3. Do this game with division and multiplication.
4. Write only an answer to a problem on the index card and have the students develop the equation to go with the answer.
5. Have more than 4 teams.

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$$8 + 2 =$$

$$6 + 4 =$$

$$12 + 3 =$$

$$8 + 5 =$$

$$7 + 6 =$$

$$5 + 4 =$$

$$16 + 3 =$$

$$7 + 2 =$$

$$10 + 6 =$$

$$15 + 4 =$$

$$3 + 4 =$$

$$2 + 5 =$$

$$12 + 4 =$$

$$6 + 3 =$$

$$9 + 3 =$$

$$5 + 6 =$$

$$10 + 8 =$$

$$12 + 6 =$$

$$9 + 6 =$$

$$13 + 5 =$$