

Math Games and Activities with Dice

IPMG  Publishing

Math Games and Activities with Dice

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www.iplaymathgames.com

ISBN 978-1-934218-03-7

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Introduction

Dice have been used as a recreational pastime for thousands of years. One of the earliest examples is the four-sided dice from Egyptian tombs. Etruscan dice, found near Rome, and made about 900 B.C.E., are similar to the dice of today.

During the 12th and 13th centuries, dice spread throughout England and were often played by men in taverns for almost anything, even their clothing.

Because of the link to gambling, dice games met with strong disapproval by many of the early colonists in America. Despite these admonitions, dice still became a common household item in the North American colonies and have remained a part of the standard gaming inventory in most homes ever since.

Many dice games have been passed down through the centuries. A few of the games have even been modified and marketed by commercial vendors. Unfortunately, few resources are available to provide a link between this powerful motivational tool and mathematics instruction in Grades 2-8. That is the purpose of this resource book. It is our hope that you and your students will not only be able to relive the excitement of playing dice games, but that they will also sharpen their math skills. The games and activities usually stimulate a discussion as a follow up to each session. These discussions are important because they enhance students' vocabulary development, speaking skills, links to the math content and provide opportunities to suggest improvements to a game or to design a new game. Most of the material can be copied and used immediately. Some games are generic in nature and designed to be modified by teachers and/or students. The games and activities are also useful ideas to send home to families or as summer fun. If some parents are concerned about the potential link to gambling, encourage them to refer to the dice as number cubes.

The table of contents groups the games and activities by topic. Within each topic the games are organized alphabetically, but not sequentially. Teacher comments and selected answers are also provided.

Why use dice?

Dice are:

A useful diagnostic tool

Highly motivating

Flexible! They can be used at numerous grade levels and in many settings

Inexpensive and readily available

A powerful springboard to new topics based on pupil experience

Helpful as an aid to reinforce concepts

Effective as a tool to provide skill maintenance

A familiar, tactile, visual, yet mysterious and magical way to provide variety

When and where to use dice:

As a class starter.

Friday afternoon.

Special days and events.

Day before holiday.

As a “sponge” or “filler.”

Whenever the objective warrants.

Individually.

One on one.

In small groups.

As an entire class.

As an activity station.

Management tips for using dice games:

Make sure the game fits your objectives.

Explain the rules before play using transparent dice or “giant” dice.

Establish ground rules before play begins.

Keep the group size at four or less.

Match students of comparable ability in competitive games.

Be sure to provide a follow up discussion for each game. The discussion can include sharing strategies to win, questions and what was learned from the game.

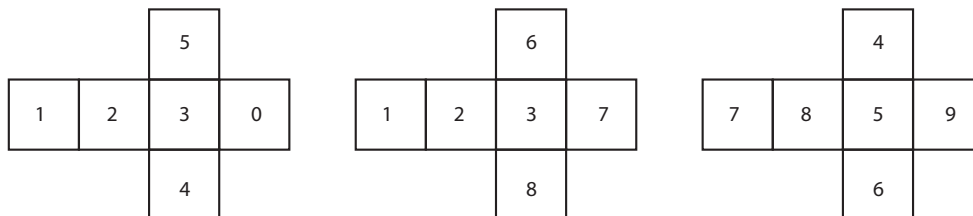
If parents are concerned about the link to gambling, send a sample game home with a note explaining the objective of the game.

Use the games sparingly.

Around the Schoolyard

Materials

Three customized dice labeled as shown below for each group.



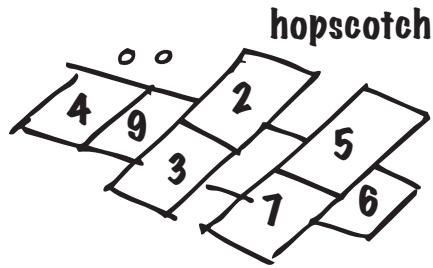
One *Around the Schoolyard* game board for each player/team.
One place marker for each player/team.

Rules and Play

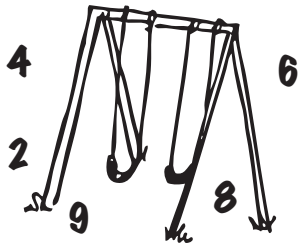
1. This is a division of whole numbers with remainders dice game for 2-4 players/teams. The object of the game is to be the first player/team to go all around the schoolyard by solving problems. Players must travel from start to finish, counterclockwise, one station at a time.
2. To start the game, each player/team places a place marker at the start. Next, the first player/team rolls all three dice. In every dice roll, three 1-digit numbers will appear. The player/team must then select one number to be the divisor. The remaining numbers are used to form the dividend. For example, if the numbers were 8, 3, and 1, they could be arranged to form $18/3$. If the quotient (6) is found in the next area of the schoolyard, the player/team advances the place marker.
3. Players/teams continue taking turns. Each problem must be in the form AB/C . Zero must not be used as the divisor, and only the numbers on the dice are to be used to obtain an answer.
4. The player/team that circles the schoolyard first wins.

Variations

- Change the numbers on the dice and playing board using the generic *Around the Schoolyard* game board master.
- Adapt the game to addition, subtraction, and multiplication by using two customized dice and the generic *Around the Schoolyard* game board.
- Redesign the game board to an interdisciplinary setting such as *Tour The Planets*.

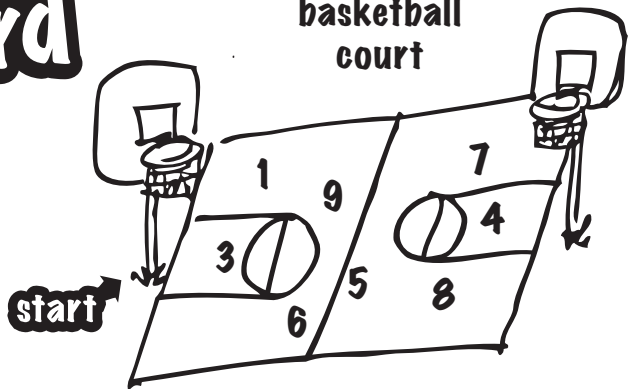


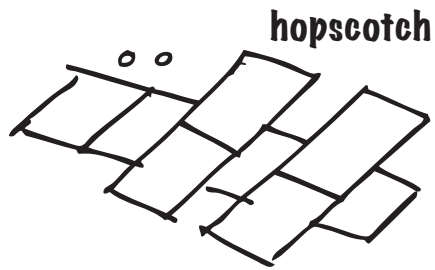
swingset



Around The Schoolyard

basketball court





swingset



bikerack



finish

Around The Schoolyard

