

Talking Stick Games Inc.
Kids Learn™ Math Parent Guide
For Nintendo® DS™

Introduction

We all know that kids find computer games fun, exciting and motivating. But what about the benefits of using computer games for educational purposes?

According to the research, using computer games to learn encourages the learner to take an active role in his or her learning, take risks, and engages the learner in an interactive, fun way. Using computer games to learn ensures children get immediate feedback, understand each new skill before moving on to the next level, and challenges children to keep going to improve their scores or get more points and, while doing this, reinforce what is being learned.

The Importance of the Skills Being Developed in Kids Learn™ Math

Mathematics is a powerful learning tool. Children who have a good understanding of basic math concepts and a positive attitude toward mathematics grow up with a framework and tools for reasoning, problem solving, and expressing ideas and concepts clearly. When children are engaged in math activities that are engaging, motivating and relevant to their lives, they are able to extend and apply their knowledge across the curriculum to areas such as science, geography, music and art.

The math curriculum is divided into the following 5 strands:

Number Sense and Numeration – This strand refers to mathematics related to number and operations. With a good sense of number, children are able to develop useful strategies for solving problems. This strand includes the four basic operations of addition, subtraction, multiplication and division.

Measurement – When children learn about measurement concepts and skills they learn the attributes of the many objects that can be measured and the way to measure quantities such as time, temperature, mass, volume and area. Children learn to use a variety of measurement tools and learn to apply their understanding of measurement relationships.

Geometry and Spatial Sense – Children develop spatial sense by comparing shapes and figures in various positions. They can visualize shapes, draw them and compare them as they manipulate two- and three-dimensional objects. Children with a strong spatial sense have a better understanding and appreciation for the many geometric aspects of the world around them.

Patterning and Algebra: The study of patterns and relationships is one of the major themes in mathematics. Children learn to recognize, describe and generalize patterns in order to help them understand the observable patterns that exist in the real world. Children learn to identify and articulate the properties of patterns and learn to use graphs, tables and verbal descriptions to represent relationships that generate patterns.

Data Management and Probability – When children work in this strand, they learn about different ways to gather, organize and display data. They learn how to read and analyze data to draw conclusions about various themes and topics. Learning how to

understand graphs and statistics helps children draw conclusions based on their ability to think critically about many of the problems and issues they will encounter in their everyday lives.

Each of these strands is represented in the Kids Learn™ Math games.

Playing Kids Learn™ Math

Kids Learn™ Math was designed for children from 6 - 10 years old as a way to reinforce their everyday spelling and grammar skills.

The game is divided into a Games Mode; an Exercise Mode; and a Career Mode. In the Games Mode, players play games that help them practice their skills; in the Exercise Mode, players complete skills-based activities without the time constraints; and in the Career Mode, players use the skills they learned when they completed the exercises and play the games to unlock new games.

Kids Learn™ Math uses an amusement park theme to engage children in the games and activities. The games are divided into 5 categories: Arcade, Attractions, Candy Stand, Sport Shack, and Craft Shops. Each of these categories contains a number of games within them that challenge the players to solve problems using their knowledge and understanding of mathematics.

This Parents' Guide is designed to help parents understand what children learn when they play each game, how these skills are tied to the Mathematics curriculum, and provides ways that parents can engage children in activities designed to help them practice their math skills when they aren't playing on the DS. Helping children with math is just as important as helping them with reading and writing.

Kids Learn™ Math: Skills

Games

Attractions

- What Time is It? – display a given time on an analog clock. Children need to use their ability to read an analog clock to show the time on the clock. As they play at higher levels, they need to understand the number of minutes in an hour and need to be able to divide minutes into the appropriate hours and minutes.
- Labyrinth – move on a grid. Children use addition to help them progress from the entrance to the exit of the labyrinth
- Tin Can Alley – solve word problems. Children need to read, understand the word problem, and carry out a variety of operations in order to solve the problem. They also need to understand place value.

Candy Stand

- Fruit Spits – patterning. Children need to complete the fruit patterns provided.
- How Much Money – addition of coins. Using the change provided, children need to determine the correct number of coins needed to solve the problem.
- Juice Bar – solve addition word problems, follow directions, understand fluid measurement. Children follow directions to correctly solve the problem, and are able to convert fluid ounces to quarts in order to complete the hard level.

Sport Shack

- Fishing – division. To play this game, children need to select the number (dividend) that can be divided by the divisor with no remainder.
- Ring the Bells – perform mathematical operations. Children need to select the correct answer to problems by performing mathematical operations including addition, subtraction, multiplication and division
- Horse Race – division. Children need to choose the numbers that can be divided evenly by the provided divisor.

Craft Shops

- Painting – linear measurement. To play this game children need to identify the numbers marked on a ruler to determine the number that the arrow points to
- Star Shapes – draw a reflection of a given shape. Children need to understand the meaning of “reflection” and draw the reflected shape of the shape provided on the screen.
- Shape Puzzles – slide, turn and flip blocks to cover a given shape. Children use transformational geometry to cover a given shape using blocks of various shapes.

Arcade

- Horseshoes – place value. Children use their knowledge of place value to correctly form the identified number.
- Slot Machine – computation. Children use their ability to add or multiply to correctly solve the equation on the equation table.
- Dart Balloons – subtraction. To play this game, children use their ability to subtract numbers from a given number until they arrive at 0.

How Parents Can Help

The chart below identifies the skills being developed when children play the games in Kids Learn™ Math and how parents can support their children as they work their way through the games. One of the most helpful strategies would be for parents to try out the games themselves to determine what it is children are being asked to do. In addition, the suggestions below can be worked on as children complete homework assignments, when they're out for a walk, shopping, or anytime that's convenient.

| | Games Using the Skill | How Parents Can Help |
|--|---|---|
| Measurement: Time | Attractions - What Time Is It? | - create an analog clock using a small paper plate for the clock face, construction paper for the hands and a brass brad inserted through the hands that will allow the hands to move. See http://www.enchantedlearning.com/crafts/clock/clock/ for a template. |
| Measurement: Linear Measurement | Craft Shops - Painting | - provide your child with a ruler that has clear markings on it. Talk to your child about the marks on the ruler, observing that some lines are thicker than others. Count the lines and discuss why some of the lines are thicker than others. Show your child how to “read” the ruler from left to right. |
| Measurement: Liquid | Candy Stand - Juice Bar (converting quarts to ounces) | - give your child opportunities to add and measure ingredients while you are cooking or baking at home. |
| Number Sense and Numeration: Operations | Operations Attractions - Labyrinth Candy Stand - Juice Bar Arcade - Dart Balloon - Slot Machine Sport Shack - Fishing - Horse Race - Ring the Bells | - it’s important for children to be able to do math calculations in their heads (mental math). Use your child’s free time (while driving to and from activities, waiting for dinner, etc) to create simple addition, subtraction, multiplication and division problems that your child can compute using mental math. Talk with your child about how he or she calculated the answer. - Create number pattern puzzles for your child to solve. For example: Write a sequence of numbers that follows a pattern, such as 4, 8, 12, 16. Ask your child what number comes next. Have him or her explain what the pattern is (counting by 4s). - Have your child fill in missing numbers in patterns, such as 43, 38, _____, _____, 23, _____, 13. Ask him or her what the pattern is. (subtracting by 5s). - Have your child create number patterns for you to identify. - A fun way to practice subtraction from 100: you need one die, paper and pencil for each player. Write 100 at the top of your paper. |

| | Games Using the Skill | How Parents Can Help |
|--|------------------------------|---|
| | | Throw the die and subtract the amount from 100. In turn, throw the die and continue subtracting. The first person to get to zero wins the game. For young children, start with 50. For addition practice, reverse the process. The first person to reach 100 wins the game. |

| | Games Using the Skill | How Parents Can Help |
|---|---|---|
| Number Sense and Numeration: Place Value | Place Value Attractions <ul style="list-style-type: none"> - Tin Can Alley Arcade <ul style="list-style-type: none"> - Horseshoes | <ul style="list-style-type: none"> - help your child understand place value by making groups of ones and tens using objects such as toothpicks or buttons to represent different numbers. For example, ask your child to show you three sets of ten items and five single items (3 tens, 5 ones). Ask them to tell you the number (35) without having to count them (35). - Write down numbers and ask your child to tell you which number is in the “ones” column, which is in the “tens”, which is in the “hundreds”, etc. - Ask your child to write the number that you tell them by telling them that the number has, for example, a one in the “ones” column, 0 in the “tens” and 3 in the “hundreds” (301) |
| Number Sense and Numeration: Money | Money Candy Stand <ul style="list-style-type: none"> - How Much Money | <ul style="list-style-type: none"> - Hold some coins in your hand so your child can’t see them. Ask your child to tell you what coins you have by giving them clues. Eg. I have 2 coins in my hand. They’re worth 35 cents. What coins do I have? (a quarter and a dime). I have 3 coins in my hand. They’re worth forty cents. What coins do I have? (a quarter, a dime, a nickel. Ask how they know the answer. - Ask your child to tell you the total cost of items they might want to buy (eg. A juice box costs \$1.25 and an apple costs 35 cents. How much money is needed to buy both items?) |
| Geometry: Transformational Geometry | Craft Shops <ul style="list-style-type: none"> - Star Shapes - Shape Puzzles | <ul style="list-style-type: none"> - children need opportunities to manipulate shapes in order to develop spatial awareness. You can use a set of tangrams (a puzzle consisting of seven flat shapes, called tans, which are put together in different ways to form distinct geometric shapes), puzzles, or computer games to help children understand what happens when objects are moved in space. |

| | Games Using the Skill | How Parents Can Help |
|------------------------|---|--|
| | | <ul style="list-style-type: none"> - children also develop an understanding of transformational geometry by moving their own bodies in space. During outdoor play, ask your child to move in different directions to help them understand terms like rotate and slide. - A website with helpful information about understanding geometry can be found at: http://www.parentingscience.com/tangrams-for-kids.html |
| Data Management | Candy Stand <ul style="list-style-type: none"> - Fruit Stand | <ul style="list-style-type: none"> - Children can sort objects such as buttons or objects of clothing by different attributes (such as color, size, shape). Ask your child to identify the group with the most objects (eg there are more black socks than red socks) and how many more or less there are in the various groups. |
| Patterning | Candy Stand <ul style="list-style-type: none"> - Fruit Stand | <ul style="list-style-type: none"> - Ask your child to identify the patterns they find on their clothing, the wallpaper, pictures, or the world around them. Talk about what constitutes a pattern. Ask your child to identify the features of the pattern that are repeated. - Children can create pictures with repeating patterns using crayons or markers - Create a number pattern and ask you child to extend the pattern (eg 3, 5, 7, __, __, __) and to describe the pattern (adding 2) |