

# **DIDUNAS**

Digital Identification and  
Support of Under-Achieving  
Students

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*A Useful Guide for Parents of  
Children in Grade 1*

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Enriching lives, opening minds.



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# Engaging Parents in Mathematics Education: A Useful Guide for Parents of Children in Grade 1

## INTRODUCTION

This booklet has been developed in the context of the Erasmus + project “Digital Identification and Support of Under-Achieving Students” (DIDUNAS). The aim of this resource is to provide parents of children in Grade 1 with useful and research-based information about:

- Their role in enhancing their child’s positive attitudes towards mathematics.
- Similarities and differences between their own mathematics education compared to their child’s mathematics education.
- Ways to facilitate their child in learning basic

mathematical concepts and procedures through everyday activities.

- Pedagogical material, mathematical games, and digital tools that can be used at home and motivate children.



Overall, the scope of this resource is to help parents in understanding their role as supporters of their child’s mathematics education. It offers tips and practical suggestions which do not involve direct teaching.

## 1. Enhancing your child's positive attitudes towards mathematics

Parents play an important role in the education of their children through the attitudes they help them to shape and the support they provide.

### **AFFECTIVE DOMAIN & MATHEMATICS EDUCATION**

Children's affective domain towards mathematics, i.e., their beliefs, attitudes, feelings, and moods, is important for their performance in mathematics.



### **Motivation**

Students are more motivated to learn and engage in mathematics when they feel

that the subject is important to their lives and future.

### **Self-confidence**

Students seek to work with math activities and math problems when they feel capable of doing so.

### **Positive Attitudes**

A positive attitude towards mathematics helps students engage with mathematics activities and problems.

### **HOW CAN I HELP MY CHILD?**

#### **1. Be positive about math**

Try to keep a positive attitude towards mathematics yourself. Avoid telling your child that math is difficult or that it is for a special group of people and not for everyone. Show your child that math is an important part of your daily life and everyday activities.

A positive attitude towards mathematics will help children

be open to learning mathematics.



## 2. Show confidence

Trust your child. Ask your child to show you something in math. Try to be a student with your child and avoid telling how to do something in math.

## 3. Listen to your child

Show your child that you are there to listen. Encourage a discussion about the way your child learned something in math and works.

## 4. Think out loud

Provide your child with opportunities to explain loud their thinking or working on something related to math. Discuss their observations and predictions or the strategy

used to solve a math problem. Try to focus on your child's way of thinking and not on correcting mistakes.

## 5. Trigger curiosity

Encourage your child's curiosity about what's going on around them. Develop a context in which your child can share observations and connect them to mathematics. Children's natural curiosity about the world around them will help motivate them to learn mathematics.



## 6. Reward

Encourage your child to persist with math activities by rewarding them for their effort.

## 2. What's the same as when I went to school, and what's different?

Parents should be aware of the fact that mathematics education has changed since the time they were students themselves.

### WHAT IS THE SAME?

1. Mathematics content involves numbers, operations, shapes, patterns, and algebra.
2. Emphasis is placed on mathematical problem-solving.
3. The goal of mathematics education is to develop mathematical skills.
4. The mathematical terminology is the same.
5. Data are represented with graphs and tables.

### WHAT IS DIFFERENT?

1. Mathematics is connected to daily life.
2. Conceptual understanding is emphasized. It is important for students to understand and connect mathematical concepts, rather than to perform meaningless procedures.
3. Students' are encouraged to communicate and justify their reasoning.
4. Students learn experientially through their engagement with explorations and investigations, and the use of real objects, visual representations, and technology.
6. Students work collaboratively in groups.



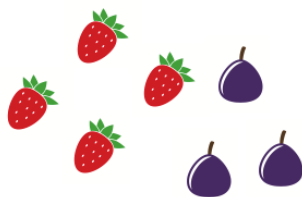
### 3. Ways for facilitating your child's mathematical thinking and learning through daily activities

A way to support your child's mathematics education is to talk about how mathematics is engaged in our everyday activities.

#### Go Shopping

A visit to the grocery store or the bakery provides great opportunities for showing the use of mathematics in everyday life.

- Count the items you shop, as you fill the shopping cart. Ask your child to point to each thing in the group as they are counting. When they are finished, tell them that the last number represents the whole group



of items.

- Count the fruits/vegetables, as you put them in a bag.
- Count the total number of packs in a shelf, e.g., the packs of cereals .



- Compare the number of packs in shelves, e.g., "How many more packs of cereals are in the shelf compared to the packs of chocolate biscuits?".
- Perform simple additions, e.g., "We bought five red apples and four green apples. How many apples we bought in total?"
- Perform simple subtractions, e.g., "How many packs of cereal are in the shelf? If we buy two packs, how many packs will be left?"

- Challenge your child to estimate the total cost of items bought for small purchases, e.g., "If the milk is around €2 and the bread around €3, how much money I will pay?"
- Challenge your child to calculate the change, e.g. "If the total cost of the items we bought is €7 and I give to the cashier €10, how much change do I get?"

### Cooking

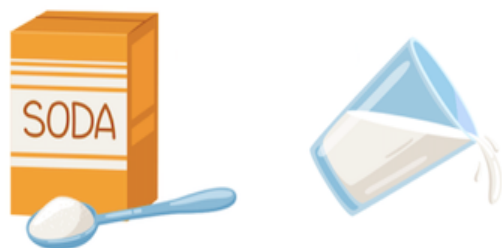
Cooking can also become a mathematical activity. You can take the opportunity to talk about a number of mathematical concepts when cooking with your children.



- Count the number of ingredients, e.g., 8 tomatoes for a salad, 6 strawberries as a topping etc. Ask your child to point to each thing in the group as they are counting. Tell them that the last number represents the whole group.



- Count the number of cups or spoons of ingredients you mix in a bowl, as you prepare a cake.



- Perform simple additions and subtractions, e.g., "We need two spoons of white sugar and one spoon of brown sugar. How many spoons of sugar we need in total?"



- Perform simple subtractions, e.g., “We baked 9 cookies. If we eat 2 cookies, how many cookies will be left?” or “There are 8 eggs in a pack. I need 10 eggs for a recipe. How many more eggs I need?”



- Decorate cookies or a cake using different colors of chocolate chips. Ask your child to follow a pattern, while placing the chocolate chips on the cake, e.g., yellow, red, green, yellow, red, green... or red, red, blue, red, red, blue...



### **In the car**

- While driving, provide your child with numbers on a grid and ask your child to color in

the grid as they see the numbers on signs or license plates.



### **Dining**

- Talk about how many plates, bowls, glasses etc. to place on the table for dinner.
- Compare the number of items, e.g., “Are there as many knives as forks?”.

### **Reading math stories**

Many books for children involve mathematical stories and offer opportunities for practicing counting, addition, and subtraction. For example:

- Eugene Trivizas, Aris the shoemaker
- Eugene Trivizas, Foughitra, The witch with the vacuum machine



## 4. Pedagogical material and games

An easy way to engage with your child's mathematics education is to play math games during your free time. Math games provide a great opportunity for enhancing strategies like trial-and-error, numeracy skills, and mathematical discussions. Find below a list of tools and fun math games.

### TOOLS

- Dices



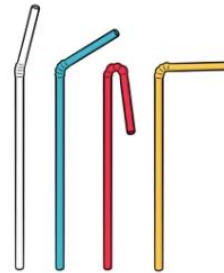
- Cards with numbers



- Mini whiteboard for game boards, calculations, and scoring



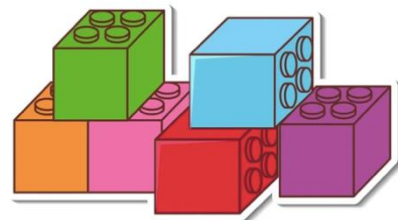
- Sticks or straws and rubber bands to make bundles



- Counters - these can be mini figurines, pasta, buttons, or other small objects.



- Blocks, like Lego or Duplo



- Number chart (1-10, 1-20, 1-100)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

## Math Games

### (1) Reach 10

*Mental counting strategy game for 2-3 players*

#### Equipment

- Paper or whiteboard to keep tallies for wins

#### Guidelines

- The player who says first the number 10 wins.
- Players count loud numbers to 10.
- Players take turns to say 1, 2 or 3 numbers in order. In the example below, Player A wins:  
Player A: 1, 2, 3  
Player B: 4, 5  
Player A: 6, 7, 8  
Player B: 9, 10
- Keep a tally of who wins the games.
- Discuss winning strategies.
- You can make the game harder by extending counting to 20 or 30.

### (2) Guess the number

*Basic counting skills game for 2 players or more*

#### Equipment

- Small paper sheets
- Plastic number chart with numbers 1-20
- Pencil and marker

#### Guidelines

- Player A thinks of a number and secretly writes it down on a paper sheet.
- Player B guesses the number.
- Player A responds with "larger" or "smaller".
- Player B cross out the number that number and guesses a new one.
- This continues until the secret number is revealed.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

### (3) Climbing the mountain

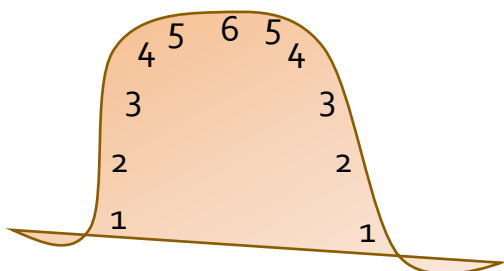
Number recognition game for 2-3 players

#### Equipment

- Paper or whiteboard
- One 6-sided dice

#### Guidelines

- Draw a mountain on a paper or whiteboard (one for each player).
- Players take turns to roll the dice. They wish for rolling out the numbers in order, i.e., 1, 2, 3, 4, 5, 6, 5, 4, 3, 2, 1. In case the result is number 1, the player crosses off 1 on the mountain and waits until the dice shows 2, then 3 etc.
- The game continues until a player has made it all the way up the mountain and down the other side.



### (4) Snake

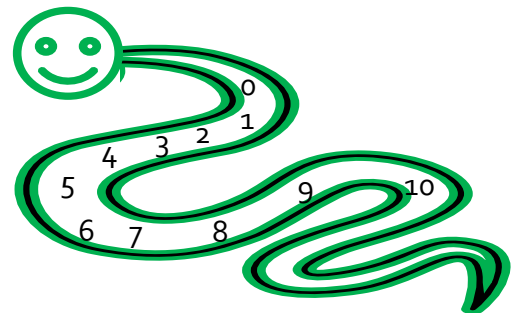
Simple addition facts game for 2 players

#### Equipment:

- Paper or whiteboard
- Two sets of cards with numbers 0-5.

#### Guidelines:

- Draw two snakes with the numbers 0-10.
- Put the cards face down.



- Players take turns to pick one card from each set. They add the numbers together and cross out the total (e.g., roll out 3 and 2, cross out 5).
- If the total has already been crossed, the player misses his/her turn.
- The game continues until a player has crossed out all the numbers on their snake.

## (5) Towers

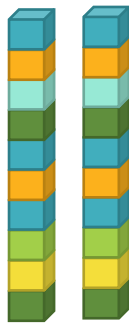
Practice subtraction game for 2 players

### Equipment

- 20 blocks per player
- 1 six-sided dice
- Paper or whiteboard

### Guidelines

- Each player builds a tower with 10 blocks.
- Players take turns to roll a dice. They remove as many blocks from their tower as the dice shows. They write the subtraction sentence e.g.,  $10-3=7$ .
- If the number rolled out is larger than the number of the blocks, the player misses his/her turn.
- The game continues until a player removes all blocks. The last roll should be the exact number needed to get to zero.



## (6) Number line

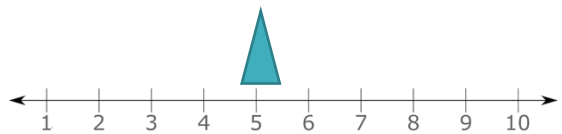
Addition and subtraction game for 2 players

### Equipment

- Paper or whiteboards
- A small figurine (or other type of counter)
- 6-sided dice

### Guidelines

- Use a number line (1-10).
- The counter starts on 5. "Player A" moves the counter right to get to 10, "Player B" moves the counter left to get to 1.



- Players take turns to roll the dice. Then they move their to the right or to the left, according to the number on the dice. If the counter reaches 1 or further "Player B" wins. If the counter reaches ten or further "Player A" wins.

## 5. Digital Tools

Children usually enjoy playing on the computer or with tablets. Introduce them to online interactive educational games that support numeracy skills.

Below you can find a list of websites with interesting math games.

- <https://www.topmarks.co.uk/>
- <https://www.sheppardsoftware.com/>
- <https://www.splashlearn.com/>
- <https://mrnussbaum.com/>
- <https://mathsisfun.com/>
- <https://ictgames.com/>
- <https://www.education.com/games/math/>
- <https://toytheater.com/>
- [www.abcya.com](http://www.abcya.com)

### Examples of math games that can be played at home: Patterns

#### (1) Shape Patterns

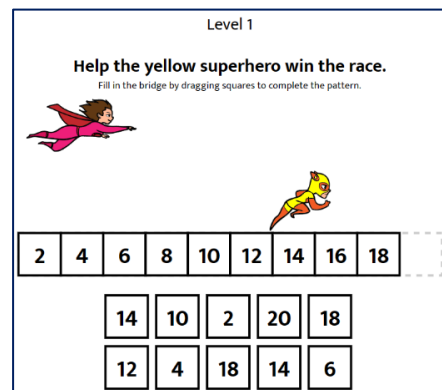
<https://www.topmarks.co.uk/ordering-and-sequencing/shape-patterns>



#### (2) Number patterns

[Number Patterns Game | 3rd Grade](#)

[Math Game | Toy Theater](#)



### Number Sense

#### (1) Counting numbers

[Nutty Numbers - A counting game.](#)

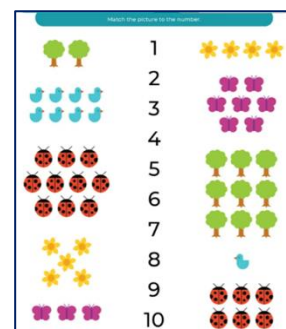
[forwards and backwards \(ictgames.com\)](#)



#### (2) Recognize Numbers

<https://www.abcya.com/printables/w>

[orksheet-match-number-group](#)



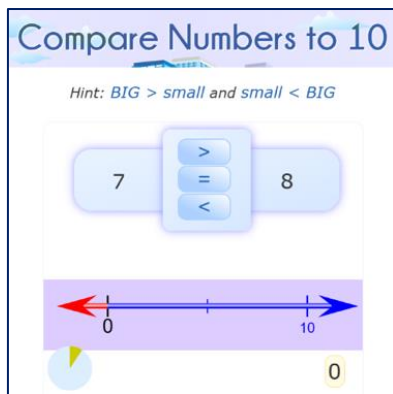
(3) Order numbers

<https://ictgames.com/mobilePage/mushroomShuffle/index.html>



(4) Compare numbers

<https://mathsisfun.com/algebra/compare-numbers-10.html>



**Problem Solving**

<https://mrnussbaum.com/best-math-friends-online-word-problem-game>



**Addition and Subtraction:**

(1) Composing and Decomposing numbers

<https://www.education.com/game/water-rafting-compose-numbers-to-make-10-game-2/>



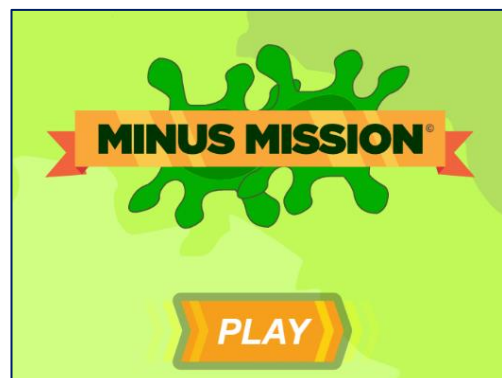
(2) Addition up to 10

[Alien Addition - Arcademics](https://www.arcademics.com/alien-addition)



(3) Subtraction

[Minus Mission - Arcademics](https://www.arcademics.com/minus-mission)










- Recognize and represent situations that involve addition and subtraction using mathematical sentences.



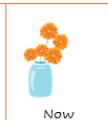


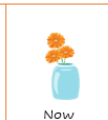


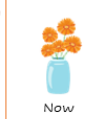


How many children are inside the sea?

How many children are outside the sea?

How many are all the children?


+  =

 First	 Then	 Now	<input type="text" value="2 + 3 = 5"/>
 First	 Then	 Now	<input type="text" value="4 - 1 = 3"/>
 First	 Then	 Now	<input type="text" value="3 + 2 = 5"/>

- Add and subtract numbers up to 10 (for example,  $3+2$ ,  $5+4$ ,  $8+2$ ,  $7-4$ ,  $10-6$ ).

5. Find the number pairs to 5.


Example:



4 and 1 is a number pair to 5

+  =

5  
total




+  =

- Solve simple addition and subtraction word problems.


6. Circle one mathematical sentence for each problem and find the answer.

Anna had 6 balls. She gave to her friend Lena 2 balls. How many balls were left to Anna?



Answer: \_\_\_\_\_

Anna ate 2 slices of pizza with pineapple and 3 slices of pizza with mushrooms. How many slices of pizza did Anna eat?



Mathematical sentence: \_\_\_\_\_

Answer: \_\_\_\_\_