



ST Math®

Teacher Guide to Supporting 1st Grade Students Learning From Home

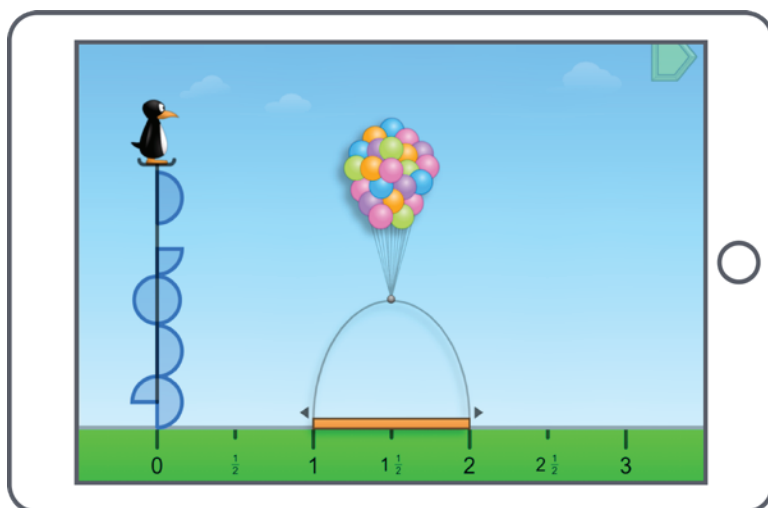


MIND
RESEARCH INSTITUTE

With the spread of Coronavirus, COVID-19, schools across the country are temporarily closing. At [MIND Research Institute](#), our mission is to ensure that all students are mathematically equipped to solve the world's most challenging problems. That's why we stand ready to provide resources and no-cost access so the learning can keep on happening, even if school is temporarily closed.

This guide provides support and resources that teachers can use for remote learning. There's also a companion guide for parents. All resources in the parent guide are included here to support teachers as they plan their remote instruction. The three types of resources in this guide are outlined below.

ST Math Program: [ST Math](#) is a PreK-8 visual instructional program that leverages the brain's innate spatial-temporal reasoning ability to solve mathematical problems. Its unique, patented approach provides students with equitable access to learning through challenging puzzles, non-routine problem solving, and informative feedback. With ST Math, students build deep conceptual understanding, and schools see proven, repeatable results.



Hands-On Math Activities: These activities focus on specific math concepts within a grade level. Each activity is designed to engage students in learning that is hands-on and promotes understanding of the concept. These activities are meant to be done with a parent or guardian. It's a fun way for children and parents to do math at home. Each activity includes clear directions, vocabulary words, and questions parents can ask to support their children during the activity.

Number Sense Games: Number Sense is an area that is critical to mathematics learning. It includes mathematical concepts like counting, adding, subtraction, multiplication, division, fractions, place value, estimation, and many others. Included in this packet are activities that students can do at home with their families to build number sense and practice those critical skills in a fun and engaging way through gameplay.

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Hands-On Math Activities 14-23

Planning strategy for creating virtual ST Math Lessons.

A collection of hands-on, grade-band activities focused on practicing and exploring math concepts. (Students will not get on ST Math for these activities.)

Virtual Math Talk/Number Sense Games 24-39

Use the ST Math Creature Board to do a virtual math talk with your students.

Hands-on games and math stories designed to support students in building number sense. (Students will not get on ST Math for these activities.)

Using These Resources

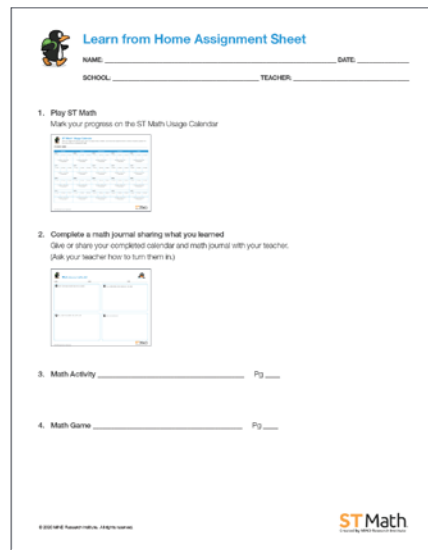
As you review this packet and prepare to use these resources to support you in planning your remote learning, here are some suggestions for you.

Provide your students with an assignment sheet.

- Download the assignment sheet from this packet and use it to communicate with your students the expectations for their work during the week.

Review the tips for parents.

- These are tips that are provided in the parent guide, but also are good reminders that you may want to include in your email communications.



The assignment sheet is titled "Learn from Home Assignment Sheet" and includes fields for NAME, DATE, SCHOOL, and TEACHER. It contains four numbered tasks: 1. Play ST Math (with a screenshot of the ST Math interface), 2. Complete a math journal (with a screenshot of a journal page), 3. Math Activity (with a line for the page number), and 4. Math Game (with a line for the page number). The ST Math logo is in the bottom right corner.



Visit stmath.com/coronavirus

for additional information and support.




Learn from Home Assignment Sheet

NAME: _____ DATE: _____

SCHOOL: _____ TEACHER: _____


1. Play ST Math.

Mark your progress on the ST Math Usage Calendar.

**ST Math® Usage Calendar**
Track and celebrate every time you use ST Math. You'll enjoy at least 30 minutes. Color the box each day that shows the number of minutes you played! When you're ready to add up your progress on ST Math.

STUDENT NAME: _____

DATE	MINUTES	DATE	MINUTES	DATE	MINUTES	DATE	MINUTES
10 min	20 min	30 min	40 min	50 min	60 min	70 min	80 min
Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed
DATE	MINUTES	DATE	MINUTES	DATE	MINUTES	DATE	MINUTES
10 min	20 min	30 min	40 min	50 min	60 min	70 min	80 min
Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed
DATE	MINUTES	DATE	MINUTES	DATE	MINUTES	DATE	MINUTES
10 min	20 min	30 min	40 min	50 min	60 min	70 min	80 min
Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed
DATE	MINUTES	DATE	MINUTES	DATE	MINUTES	DATE	MINUTES
10 min	20 min	30 min	40 min	50 min	60 min	70 min	80 min
Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed	Number of Minutes Completed

ST Math

2. Complete a math journal sharing what you learned.

Give or share your completed calendar and math journal with your teacher.
(Ask your teacher how to turn them in.)

**Math Journal with Juli**

NAME: _____ DATE: _____

**1** WRITE OR DRAW SOMETHING YOU LEARNED

**2** TELL SOMETHING THAT WAS EASY OR HARD

**3** TELL HOW FEEL YOU WITH MATH

**4** MATH VOCABULARY

ST Math

3. Math Activity _____ Pg. _____

4. Math Game _____ Pg. _____

ST Math

Resources to support, monitor, and assess student learning while they play ST Math.

Teacher Guidance:

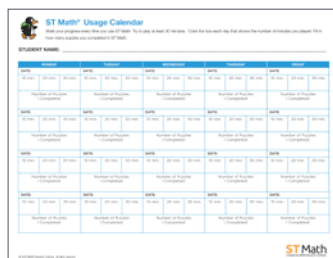
- Encourage students to work independently on ST Math and track their usage on the ST Math calendar. Recommended usage time is 20 to 30 minutes at least 3 times per week.
- Remind your student to use the Think Before You Click strategy to help them think through games. This will help support them when they are stuck on puzzles. For more information on this strategy, view the videos on our instructional resources [Youtube playlist](#).
- Encourage parents to support the student's thinking by asking [facilitating questions](#) instead of telling or showing the student how to solve the puzzles. The parent guide includes a facilitating questions poster. For more information on how parents can facilitate student thinking as they work on ST Math puzzles, view the videos on our instructional resources [Youtube playlist](#).
- Consider posting or emailing a link to the Think Before You Click and Facilitation videos for easy access for parents.
- Review the other resources on the site to determine what other things you might want to share to support the use of ST Math at home.

Below are tips to share with families working with their children at home:

- Work with your child to set goals and monitor their progress toward achieving their goals. This is a great opportunity to help your child see that they can achieve their goals.
- When your child is finished playing ST Math, have them complete a math journal to share what they have learned.
- If possible, take time to sit with your child and ask them to explain to you what they are learning with ST Math.
- A fun way to share learning together is to have your child "teach" a family member how to play one of the ST Math games. They can share the mathematics in the game.
- If your child gets stuck playing the ST Math puzzles, you can have them think through the questions on the Think Before You Click poster. If you are able, you can use the questions on the Facilitating Questions poster to help your child problem-solve through the ST Math games.

ST Math Resources in the Teacher Guide

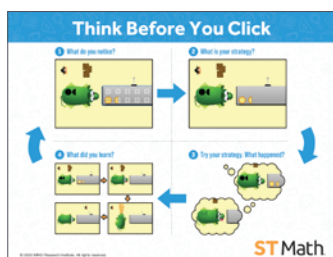
The resources in the table below are provided in the Parent and Teacher Guides to support students as they learn at home.



ST Math Usage Calendar: As students play ST Math, have them track their progress on the calendar.



ST Math Journals: There are different Math Journals for students to communicate their learning. You may choose to use only one or to provide all of them for students to choose from. Students can turn these in via email or another virtual tool each week or you may choose to have them turned in when students return to school.



Think Before You Click Poster: This poster is a great resource for students to ask themselves questions as they work through ST Math puzzles. It will help students as they get stuck. Students may have to try different strategies and observe the feedback several times before they get the correct answer. For more information on this strategy, view the videos on our instructional resources [Youtube playlist](#).



Facilitating Questions Poster: This poster is a great resource provided to parents to help support their student while they play ST Math at home. It is important to remind parents not to tell the student the answer, but to ask questions that help them think through the puzzles. For more information on this strategy, view the videos on our instructional resources [Youtube playlist](#).



Additional Resources: Additional resources for teachers and parents can be found at <https://www.stmath.com/coronavirus>.



ST Math® Usage Calendar

Mark your progress every time you use ST Math. Try to play at least 30 minutes. Color the box each day that shows the number of minutes you played. Fill in how many puzzles you completed in ST Math.

STUDENT NAME: _____

MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY		
DATE:			DATE:			DATE:			DATE:			DATE:		
10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.
Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:		
DATE:			DATE:			DATE:			DATE:			DATE:		
10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.
Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:		
DATE:			DATE:			DATE:			DATE:			DATE:		
10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.
Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:		
DATE:			DATE:			DATE:			DATE:			DATE:		
10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.
Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:		
DATE:			DATE:			DATE:			DATE:			DATE:		
10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.	10 min.	20 min.	30 min.
Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:			Number of Puzzles I Completed:		



Math Journal with JiJi



NAME: _____ GAME: _____ DATE: _____

1 WRITE OR DRAW SOMETHING YOU LEARNED

2 TELL SOMETHING THAT WAS EASY OR HARD

3 TELL HOW THIS HELPS YOU WITH MATH

4 MATH VOCABULARY



Math Journal with JiJi

Write or draw something you learned today. Write in one box each day.

NAME: _____ GAME: _____

1

2

3

4

WRITE MATH WORDS YOU USED IN THIS GAME.





NAME: _____ DATE: _____

OBJECTIVE PROGRESS	SYLLABUS PROGRESS	TIME SPENT	# OF PROBLEMS SOLVED

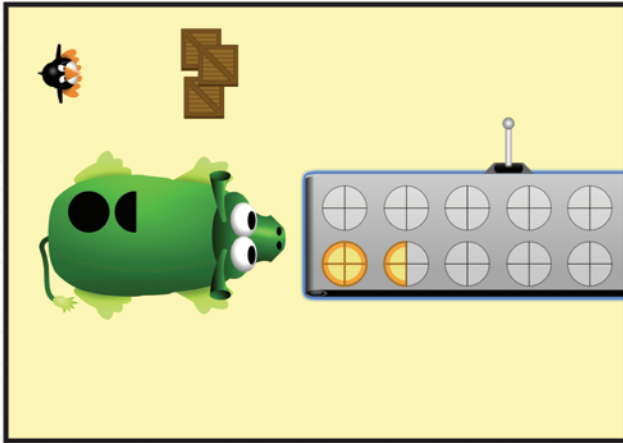
SOMETHING I LEARNED TODAY IS . . .

SOMETHING THAT WAS EASY / HARD FOR ME WAS...
(circle one)

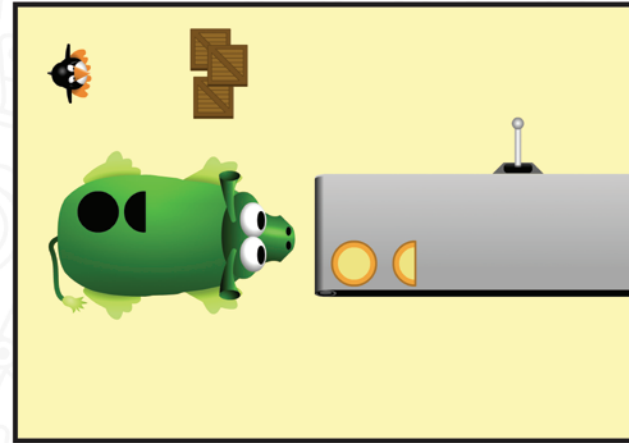
ONE WAY THIS CONNECTS TO WHAT I LEARNED IN CLASS IS . . .

Think Before You Click

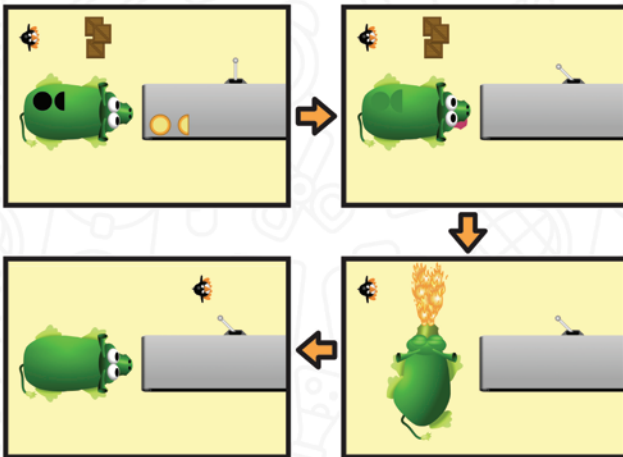
1 What do you notice?



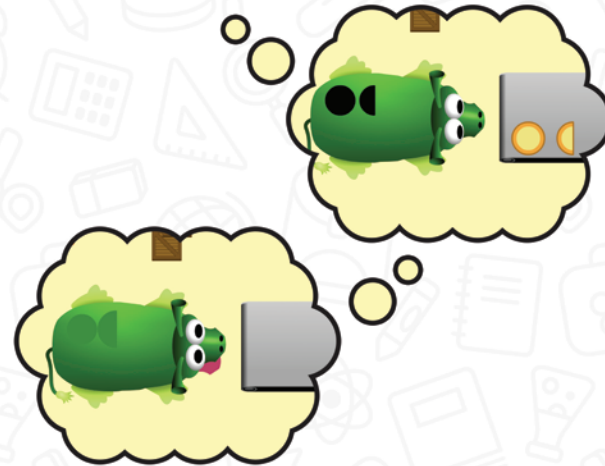
2 What is your strategy?



4 What did you learn?



3 Try your strategy. What happened?

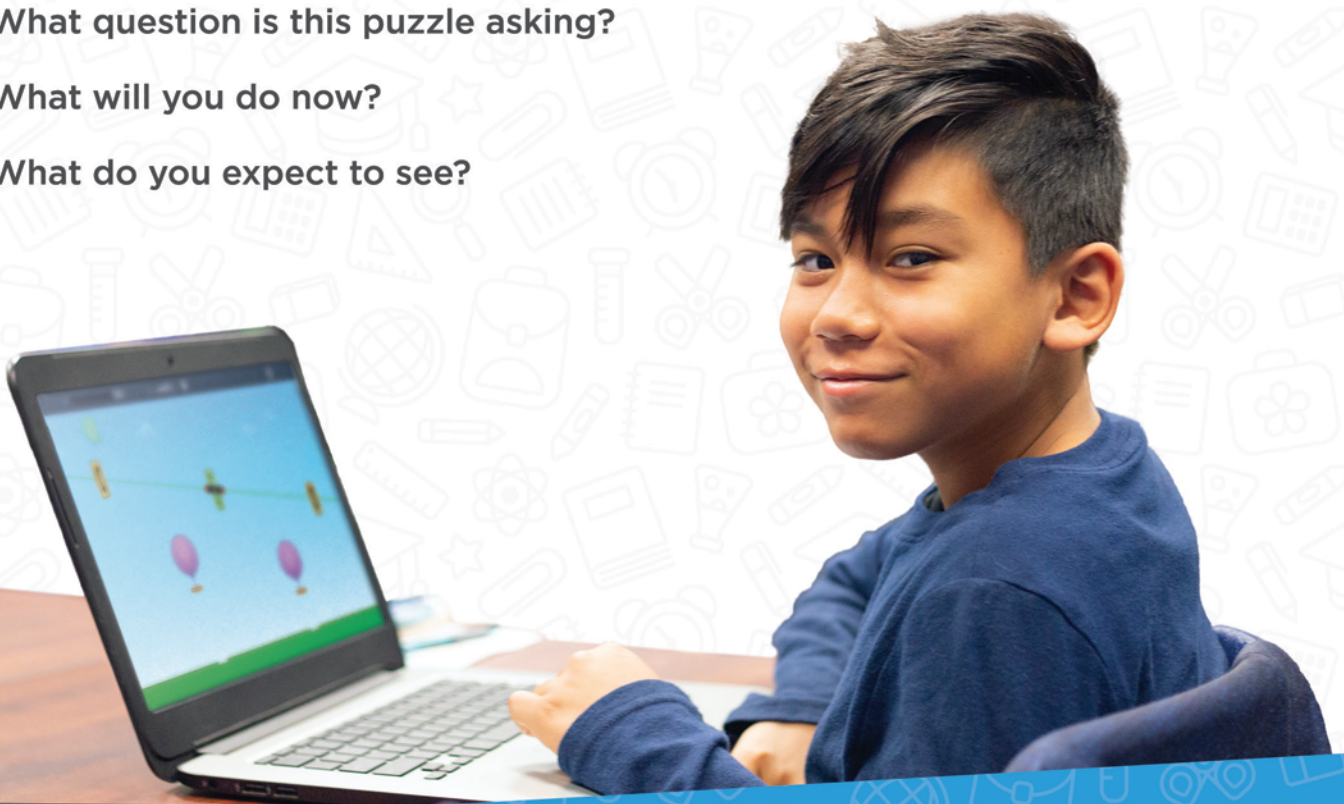


Facilitating Questions

In ST Math®, the puzzles start off simple and then get more challenging as the student progresses. When they reach a challenging problem, they may ask for your help.

To help them, ask questions like:

- What do you notice about the puzzle?
- What did you learn from the previous level that can help you here?
- What can you click?
- Describe what you see after you click. What did you learn?
- Describe the strategy that you are going to use.
- What can you do to get JiJi across the screen?
- What question is this puzzle asking?
- What will you do now?
- What do you expect to see?



Hands-On Math Activities

A collection of hands-on, grade-band activities focused on practicing and exploring math concepts.

These activities correlate to our games.

Teacher Guidance:

- These activities focus on specific math concepts within a grade-level. Each of the hands-on math activities are correlated to an ST Math game. These games are great for you to use with your students in your one-on-one meetings, or in virtual lessons. The visual models in the games help students “see” the mathematics.
- As students do these activities with their families, you may want to have students write what they learned during the activity, or write their answers to the questions so you can assess their learning. Below are some tips that you can share with parents as they do these activities with their children.

Below are tips to share with families working with their children at home:

- These are great activities for you to do with your child. Family members can use the questions and ideas provided to promote math conversations.
- Once your child finishes the activity, have them write a 5-sentence summary or draw a picture of what they learned. They should also list any questions they have for their teacher.

Hands-On Math Activity Resources in the Teacher Guide

The resources in the table below are provided in the Parent and Teacher Guides to support students as they learn at home.



Math Activity Guide: This guide outlines activities, their related materials, and math concepts.



Math Activity Sheets: These activity sheets include directions, vocabulary words, sample questions, and extension ideas. The activities are designed so that students can complete with the teacher or at home with their families.



Grade 1

Game	Materials Needed	Concepts	ST Math Game Connection
Put It Together	<ul style="list-style-type: none"> Groups of small household items such as cereal, coins, beans, crayons, etc. Paper Pencil 	Addition is combining or putting groups together. Addition can be represented with equations using the + sign.	First Grade Objective: Addition and Subtraction within 10 Game: Push Box Addition Push Box Addition L.I.
Put Together or Take Apart?	<ul style="list-style-type: none"> 2 notecards Pencil Paper 	Addition and subtraction are opposites. Addition is putting together and subtraction is taking apart.	First Grade Objective: Addition, Subtraction, and Equations Game: Mice Island
Making 10	<ul style="list-style-type: none"> Small household items such as cereal, coins, beans, crayons, etc. Pencil Paper 	A strategy for addition is making 10. Being proficient with number pairs that make 10 can help a child to be accurate, efficient, and flexible with addition.	First Grade Objective: Number Pairs and Making 10 Game: Bouncing Shoes Bouncing Shoes with Numbers
Ten In a Cup	<ul style="list-style-type: none"> Small household items such as cereal, pennies, beans, crayons, etc. Small cup Paper Pencil 	A “ten” is a bundle of ten ones. Numbers like 11 - 19 are made up of 1 ten and some ones.	First Grade Objective: Counting by Tens Game: Alien Capture with Tens
What’s Missing?	<ul style="list-style-type: none"> Pencil Paper Sticky notes (or small square pieces of paper) 	A variable represents the unknown in a problem. The unknown can be in any position in an addition or subtraction equation.	First Grade Objective: Addition and Subtraction Situations with Unknowns Game: Critter Addition
Equal Shares	<ul style="list-style-type: none"> Pieces of paper (varying sizes if possible) 	A rectangle can be divided, or <i>partitioned</i> , into equal shares. The shares must be equal to be called <i>halves</i> or <i>fourths</i> .	First Grade Objective: Equal Shares and Partitioning Game: Equal Division
Describe That Shape	<ul style="list-style-type: none"> Paper Pencil Crayons Toothpicks (or other straight items like straws) 	Shapes have defining attributes (number of sides, closed, etc.) and non-defining attributes (color, orientation, etc.).	First Grade Objective: Shape Differences Game: Pick Geometric Shapes 2D Shape Names
Take It Away	<ul style="list-style-type: none"> Paper Pencil Small household items, such as cereal, beans, pennies, etc. 	Subtraction is taking apart or separating. Multiple strategies can be used to subtract, including decomposing to make a ten.	First Grade Objective: Addition and Subtraction within 20 Game: Ten Frame Subtraction



Put It Together

Activity for 1st Grade Students

This game focuses on helping children to understand addition as combining, or putting together. This game will help your child develop strategies for addition within 20.

Directions:

- Gather a variety of small household items, paper, and a pencil.
- Set out the household items in small groups of like items. Have your child sort the items into groups. (e.g., a pile of cereal, a pile of crayons, a pile of small toys, etc.).
- Ask your child to grab a handful of one type of item and then a handful of a different type of item.
- Ask your child to think out loud as they solve the problem. Challenge your child to solve the problem two different ways (e.g., count all of the items, count on from the bigger number, use a fact they know, etc.).
- Have your child write an addition sentence that represents the sum of the number of items in each group (e.g., $3 + 6 = 9$).



Math Words to Use:	Materials	Sample Questions to Ask:
Add Plus Sum Equal Equation	<ul style="list-style-type: none">• Groups of small household items such as cereal, coins, beans, crayons, etc.• Pencil• Paper	<ul style="list-style-type: none">• How many ___ are in this pile?• How many total items do you have?• How can you find how many items you have in all?• What does the + sign mean?• What does the = sign mean?

Ideas to Extend Learning:

- Use the Creature Cards to create addition situations. Have your child choose two creatures and write an addition equation to represent the total number of shoes the creatures would wear.
- Have your child choose three groups of items and ask them to write and solve an addition problem with 3 addends (e.g., $4 + 2 + 5 = 11$).
- Look for addition situations in your house and ask your child how they could represent the situation with an addition sentence (e.g., "On your bedroom floor I see 3 socks and 5 books. How many total items are on your bedroom floor?").



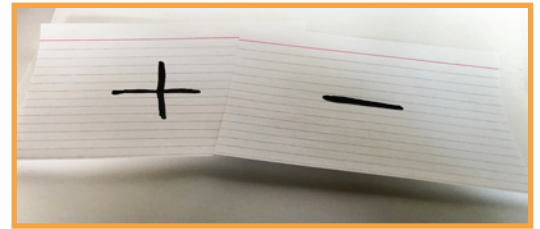
Put Together or Take Apart?

Activity for 1st Grade Students

This game focuses on helping children to understand the relationship between addition and subtraction. Your child should see addition as putting together and subtraction as taking apart. Your child should know the plus sign (+) indicates addition, the minus sign (-) indicates subtraction and the equal sign (=) indicates the equation is balanced, or equal.

Directions:

- Gather paper, a pencil, 2 notecards.
- On the notecards write + on one and - on the other.
- Pose simple addition and subtraction story problems to your child. Ask them to hold up the + sign if the problem involves putting together and the - sign if the problem involves taking apart.
- Have your child write an equation that represents the story problem and ask them to solve it.
- Repeat with other story problems. Ask your child to think out loud as they work so you can hear their strategies for addition and subtraction.



Math Words to Use:	Materials	Sample Questions to Ask:
Add Subtract Plus sign Minus sign Equal sign Put together Take apart Equation	<ul style="list-style-type: none">• 2 notecards• Pencil• Paper	<ul style="list-style-type: none">• What is happening in this problem? Are we putting together or taking apart?• What does the plus sign represent?• What does the equal sign represent?• What does the minus sign represent?• How did you solve this problem?

Ideas to Extend Learning:

- Pose story problems that involve three addends and ask your child to represent the problem and solve (e.g., “Emma has 4 red pens, 6 blue pens, and 3 black pens. How many pens does Emma have in all?”).
- Explain to your child that we can represent the unknown in a problem with a letter or shape. Show them problems such as $5 + 3 = A$ or $10 - B = 6$ and ask them to solve for the unknown.
- Show your child an equation like $2 + 3 = 4 + 1$. Ask your child if this is true and how they could prove their answer. Remind your child that the equal sign indicates both sides of the equation are balanced, or equal.



Making 10

Activity for 1st Grade Students

This game focuses on helping children to build fluency with addition through the use of the making ten strategy. Your child should know from memory all of the number pairs that make ten (e.g., $1 + 9$, $2 + 8$, $3 + 7$, $4 + 6$, $5 + 5$, $0 + 10$).

Directions:

- Gather paper, a pencil, and a variety of small household items (such as cereal, coins, beans, crayons, etc.) and put them into like piles (all of the cereal together, all of the crayons together, etc.).
- Pose different situations to your child where they have to find the missing number in the number pair to make 10. For example, "I have crayons and beans. I have 10 items total. I have 6 crayons. How many beans do I have?"
- Have your child use the items to help them solve the problem. Ask your child to write an equation to represent the problem.
- Repeat with all of the ways to make ten.



Math Words to Use:	Materials	Sample Questions to Ask:
Add Subtract Plus Minus Equal to Make ten Number pair	<ul style="list-style-type: none">• Small household items such as cereal, coins, beans, crayons, etc.• Pencil• Paper	<ul style="list-style-type: none">• What number goes with ___ to make 10?• How could we represent this with an equation?• How did you solve this problem?• How can you prove you have 10 in all?

Ideas to Extend Learning:

- Ask your child if $4 \text{ (beans)} + 6 \text{ (beans)}$ is the same as $6 \text{ (beans)} + 4 \text{ (beans)}$. Ask them to use the household items to prove that order doesn't matter when you add.
- Challenge your child with start unknown problems. In these types of problems students don't know how much they have to start. For example, "I have some erasers and 8 pencils. I have 10 items total. How many erasers do I have?"
- Pose problems such as $6 + 4 = 3 + 7$ and ask your child to prove if the equation is true or not, and how they could prove their answer. Remind your child that the equal sign indicates both sides of the equation are balanced, or equal. The equal sign is showing that one side is the same as the other side. (E.g., $(2 + 2 = 4)$ $2 + 2$ is the same as 4.)



Ten In a Cup

Activity for 1st Grade Students

This game focuses on helping children to understand that a “ten” is a bundle of 10 ones. Your child should understand that numbers like 11-19 are made up of a ten and some ones. 18, for example, is made up of 1 ten and 8 ones.

Directions:

- Gather paper, a pencil, a small cup, and one type of small household items, such as cereal, beans, pennies, etc.
- Give your child a pile of between 11 - 19 the same type of items and a small cup. Explain that you want them to count the total number of items and write the number on the paper.
- Then ask your child to count the items again, but this time put the first 10 items into the cup.
- Show your child that the number is made up of a ten (point to the cup) and ___ ones (e.g., 14 is 1 ten and 4 ones). Count together starting with the ten and then the ones (e.g., “10...11, 12, 13, 14).
- Look at the number your child wrote down and help them connect the 1 in the tens place to the 1 cup of ten ones. Help them connect the ones to the digit in the ones place.
- Repeat and focus on each number as being 1 ten and some ones.



Math Words to Use:

Materials

Sample Questions to Ask:

A ten Ones

- Small household items such as cereal, pennies, beans, crayons, etc.
- Small cup
- Paper
- Pencil

- How many items are in this cup?
- How many items are outside of the cup?
- This number has 1 ten and how many ones?
- What if the number was less than 10? How would we represent it?

Ideas to Extend Learning:

- Get more small cups. Ask your child to represent the numbers 10, 20, 30, etc. using the cups and items. Ask your child to explain why there are no ones outside the cups for these numbers.
- Pose different two-digit numbers up to 99 and ask your child to tell you how many cups they would need and how many ones would be outside the cup. For example, 75 would need 7 cups and 5 ones outside the cup.
- Set out a pile of beans, etc. and have your child count the beans. Observe if your child uses the cups to help them organize and count the beans. Have them explain to you how many beans they have and how they know that.
- Ask your child to compare two two-digit numbers and explain which number is greater using the cups and ones model. For example, 34 is greater than 21 because 34 has 3 cups of ten ones and 21 only has 2.



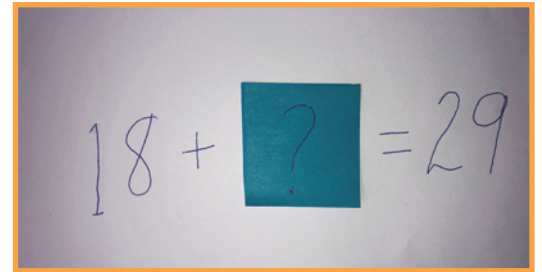
What's Missing?

Activity for 1st Grade Students

This game focuses on helping children to understand the concept of the variable, or unknown, in an addition or subtraction problem. Your child should understand that what they don't know in a problem could be the sum or difference, but the unknown could also be the beginning number or the change in the equation. Your child should know that a variable could be a letter, shape, or other symbol.

Directions:

- Gather a pencil, 8.5 x 11 paper and a small shaped paper.
- Write “?” on the small paper.
- Write a completed addition or subtraction problem on the 8.5 x 11 paper but do not allow your child to see it. Use the ? on the small paper to cover one of the numbers in the equation.
- Show the equation to your child and ask them to determine what number the ? is covering.
- Ask them to share their strategy with you.
- Repeat with other equations making sure to cover up numbers in different positions within the equations.



Math Words to Use:	Materials	Sample Questions to Ask:
Variable Unknown Known Strategy	<ul style="list-style-type: none">• Pencil• Paper• Sticky notes (or small square pieces of paper)	<ul style="list-style-type: none">• What part of the equation is unknown?• What strategy could you use to solve for the unknown?• How can you prove this is the unknown number?• How else could a variable be represented?

Ideas to Extend Learning:

- Connect the idea of a variable, or unknown, to using an addition problem to solve a subtraction problem. For example, your child could think of $12 - 7 = ?$ as $7 + ? = 12$.
- Challenge your child to solve a problem with 3 addends that includes a variable. For example, $4 + 2 + a = 13$.
- Give your child a series of problems with variables to solve where the order they are solved matters. For example:
What is a, if...
 - $a = b + c$
 - $b = 10$
 - $c = 7$



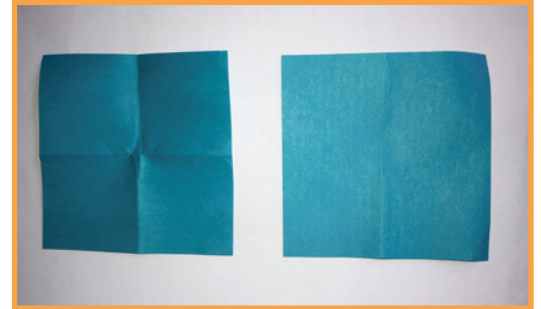
Folding Rectangles

Activity for 1st Grade Students

This game focuses on helping children to see that rectangles can be divided, or partitioned, into equal parts. Your child should understand that the parts must be equal. They should call shapes with 2 equal parts *halves*, and shapes with 4 equal parts *fourths*.

Directions:

- Give your child paper rectangles of different sizes, if possible.
- Select one of the rectangles and, working with your child, fold the paper into 2 equal pieces. Ask your child if they have ever broken something into two equal pieces and why. Explain that when something is partitioned into 2 equal pieces, the pieces are called *halves*.
- Get another of the rectangles and repeat the activity with *fourths*.
- Using another of the rectangles, fold it into two parts but make the parts NOT equal. Ask your child if these pieces could be called *halves* and why they think so.
- Do the same thing using another rectangle and this time fold it into fourths. Make sure the parts are unequal.



Math Words to Use:	Materials	Sample Questions to Ask:
Partition Equal Halves Fourths	<ul style="list-style-type: none">• Rectangular paper	<ul style="list-style-type: none">• How many equal pieces do you see?• How do we know these pieces are equal?• Why are these pieces called halves?• Why are these pieces called fourths?

Ideas to Extend Learning:

- Get two identical pieces of paper. Fold one in halves and one in fourths. Talk with your child about which pieces are bigger and why.
- Draw or find some circles for your child to partition into halves and fourths. Show them some non-examples of circles folded into halves and fourths. Help your child to see that a circle must be partitioned through the center point to have equal pieces.
- Look for examples of halves and fourths around the house. Point out times when your family has partitioned something into two or four equal pieces.



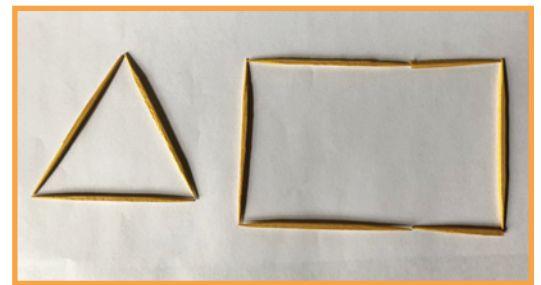
Describe That Shape

Activity for 1st Grade Students

This game focuses on helping children to understand that shapes have attributes, or something you could say a shape has, like 3 sides or equal sides. Your child should understand that some attributes help to define a shape (e.g., a shape is closed and has 3 sides so it is a triangle) but other attributes, like color or relative size or orientation do not help to define a shape (e.g., all blue shapes are not triangles).

Directions:

- Gather paper, pencil, crayons, and toothpicks.
- Give your child the toothpicks (or other straight items like straws or chopsticks) and ask them to make the different shapes from the list below.
- After your child makes each shape, talk about its attributes.
- As your child describes the shape, ask them questions to focus on defining attributes, such as being closed or open, number of sides, number of vertices (corners), etc.
- On the paper, draw multiple examples of the shapes listed below. Vary the examples by size, color, and orientation.
- Ask your child to find all of the triangles. Discuss the defining attributes of the triangles and help your child to see that color or relative size are not defining attributes.
- Shapes to make: square, rectangle, triangle, trapezoid.



Math Words to Use:	Materials	Sample Questions to Ask:
Attribute Square Rectangle Triangle Trapezoid Sides Closed Open Vertices	<ul style="list-style-type: none">• Paper• Pencil• Crayons• Toothpicks (or other straight items like straws)	<ul style="list-style-type: none">• What is the name of this shape?• How many sides does this shape have?• Are these shapes both triangles / squares / rectangles? How do you know?• Do all of one type of shape look alike? Why or why not?• Point to all of the triangles, squares, etc.• Are all squares the same size? Explain.

Ideas to Extend Learning:

- Ask your child to compare two shapes. Have them focus on what the shapes have in common and what is different (e.g., square and rectangle, square and triangle).
- List a set of attributes and have your child draw a shape that matches those attributes. For example, “I am thinking of a closed shape with 3 sides and 3 corners. What could my shape look like?”
- Go on a shape hunt in your house. Ask your child to name the shape and talk about the attributes they see.



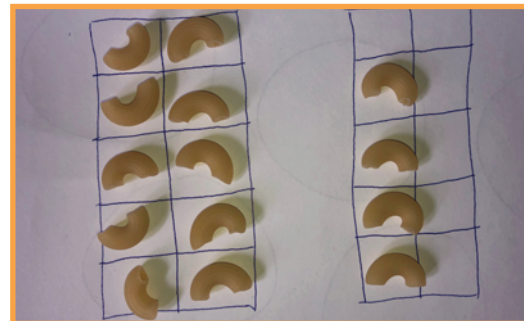
Take It Away

Activity for 1st Grade Students

This game focuses on helping children to understand subtraction as taking apart or taking away. Your child should have a strategy to subtract that is accurate and efficient. Because your child has a deep understanding of number pairs that make 10, your child could use the visual model of a ten frame to help subtract.

Directions:

- Gather paper, pencil, and small household items such as cereal, beans, pennies, etc.
- On one sheet of paper draw two blank ten frames (see picture). Ask your child to tell you what they know about a ten frame (e.g., a full row equals 5, when it's full it equals 10, etc.).
- Have your child start by using the small household items to represent different numbers from 0 - 20 in the ten frames. Talk about what they see in the ten frames.
- Then pose a subtraction problem within 20 (e.g., $18 - 7$) and work together to represent 18 in the ten frames and talk about what happens when you take away 7.
- Repeat with other subtraction problems within 20.



Math Words to Use:	Materials	Sample Questions to Ask:
Ten frame Subtract	<ul style="list-style-type: none">• Paper• Pencil• Small household items such as cereal, beans, pennies, etc.	<ul style="list-style-type: none">• What number have we represented in the ten frames? How do you know?• How many groups of ten does this number have? How do you know?• What happens if we take away ___?

Ideas to Extend Learning:

- Ask your child to use ten frames to model addition problems within 20. Encourage them to fill the first row completely before moving on to the second row.
- Pose subtraction story problems to your child and have them use ten frames to represent and solve the problem.
- Pose problems with three addends to your child (e.g., $8 + 3 + 4$) within 20 and have them use ten frames to represent and solve the problems.

Virtual Math Talk with the Teacher

Teacher Resource

- Math talks are great ways to have students explore math concepts. Use the ST Math Creature Board to explore number concepts with your students. Challenge your students to use pictures to solve the problem and then write it symbolically.
- Use the ST Math Creatures Board to pose questions to your students online. The table below has some examples.
- The ST Math Creature Board is also a great resource to use to play the Creature Target Game. This is a great game where you can give your students target numbers and then have them submit their responses. The responses can be discussed in one on one meetings, during office hours, and through online instruction.
- Both the Creature Problem Solving and the Creature Target Game are great opportunities to talk about Number Pairs/Make Ten, Addition Concepts, Skip Counting, Additive/Multiplicative Reasoning, Multiplication Concepts, Factors, Multiples, etc.).

Creature Problem Solving

Using the creatures on the board, children can solve problems about the number of shoes each creature can wear.

(NOTE: the snake has no feet so it represents 0.)

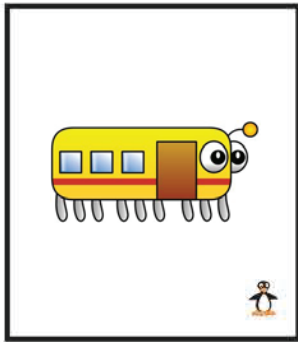
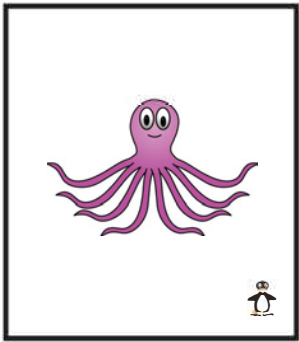
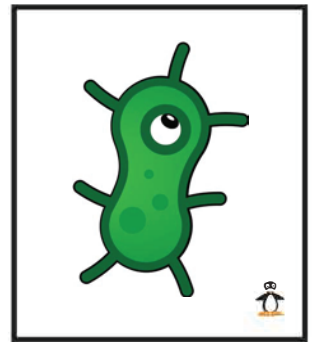
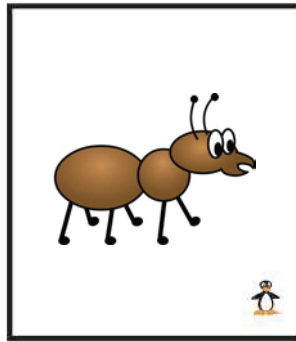
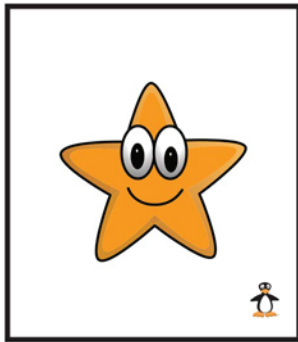
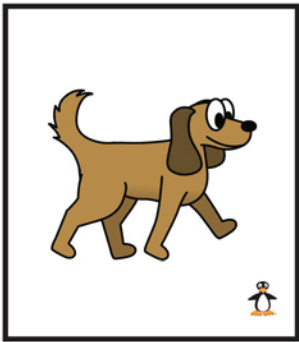
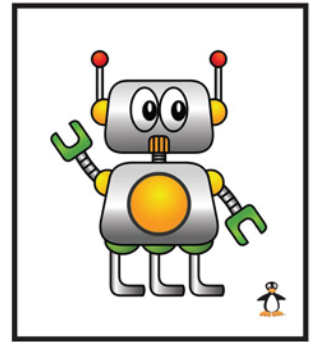
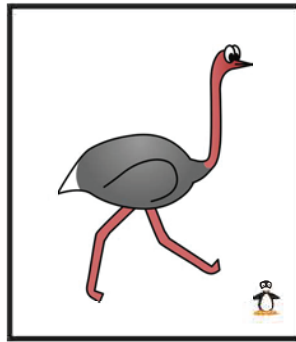
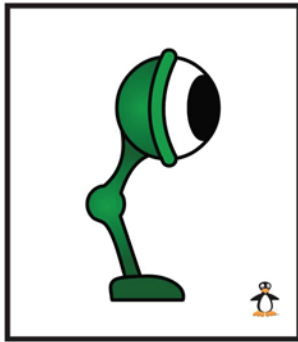
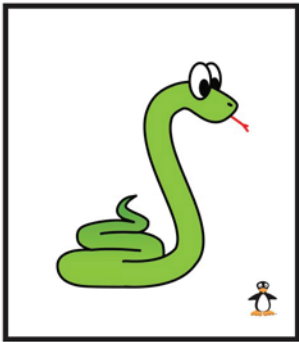
PreK-Grade 2 Ideas	Grades 3-5 Ideas
Find one creature that can wear 6 shoes. Prove that you are correct. Can you find two creatures that together can wear 6 shoes?	JiJi wanted to practice skip counting. JiJi looked at the creatures on the playground and used one of the creature's legs to skip count to 24. Which creature's legs could JiJi have used?
Angela had 10 shoes. She put them on two of the creatures. Which creatures could she put them on?	I have some creatures. Together they wear 12 shoes. If I only have 1 type of creature, which creature do I have and how many?
Paul had some shoes. He put them on robots and ants with exactly enough. How many shoes could he have?	There are 36 shoes and one type of creature. How many of those creatures do I need? Find three different ways.

Creature Target Number game

- Show the ST Math Creature Board.
The challenge is to see how many shoes each creature can wear.
Snake = 0, Eyeball = 1, Ostrich = 2, Robot = 3, Dog = 4, Starfish = 5, Ant = 6, Amoeba = 7, Octopus = 8, Bus = 9, Lobster = 10
- Give a target number. Have students identify the creatures who can wear the same number of shoes as the target number.
- Students may use any combination of creatures.
Example: Give a target number of 10. Children may choose one dog and one ant ($4 + 6$) or one octopus and one ostrich ($8 + 2$).
- Students may use any operation to make a target number.
- Give a target number of 18. Students may choose three ants (3×6) or four stars minus an ostrich ($4 \times 5 - 2$).
- If you are not able to be online with all your students at the same time, pose a few questions and have them send their responses to you.



ST Math Creature Board



Thinking Space

Target Number

Number Sense Games

Hands-on games and math stories designed to support students in building number sense.

Teacher Guidance:

- These games are for students to play with their families at home. The games are focused on number sense.
- You may want to go through the games and assign specific games for students to work on at home.
- At the conclusion of game play, you may want your students to write a short summary of their experience.

Below are tips to share with families working with their children at home:

- Play the Number Sense games with your children. This is a great opportunity to strengthen their math skills and have fun at the same time.
- Some of the games in the packet include game boards. All of the game boards can easily be made by your child instead of printing them out.
- Use the ST Math Creature Board to play the game Creature Target Number. The directions to play the game are included in your packet.
- Once your child gets a sense of how to play Creature Target Number. Challenge them to create their own problems for you.

Number Sense Activity Resources in the Parent Guide

The resources in the table below are provided in the Parent and Teacher Guides to support students as they learn at home.



Grade-Band Game Activity Guide: This guide outlines games, their related materials, and math concepts.



Game Directions: Step-by-step directions on how to play the games. These games are focused on building number sense.



ST Math Creature Board: A creature board highlighting some of the characters from the ST Math games. This board can be used to explore math concepts. Included with this resource are directions for playing the target number game.



Kindergarten to Second Grade Games to Play at Home

This is a collection of games that can be done with kindergarten to second grade aged students. A direction sheet is provided for each game. This outlines the games, specifies how to play, offers information around vocabulary words, and provides questions that family members can ask to promote thinking. All of the games are designed for parents and children to play together.

Game Name	Materials Needed	Key Idea(s)
Three Card Make 10	<ul style="list-style-type: none">Deck of cards with face cards removed. Ace equals 1.	Addition and subtraction to 20
Addition War	<ul style="list-style-type: none">Deck of cards with face cards removed. Ace equals 1.	Addition to 20
Pyramid Make Ten	<ul style="list-style-type: none">Deck of cards with face cards removed. Ace equals 1.	Addition pairs to make 10
Number Line Race	<ul style="list-style-type: none">2 number or dot cubes2 game pieces or markers2 index cardsPaper bagNumber line 0 to 27. You may print the number line provided or make your own.	Addition and subtraction to 27
Make Ten Concentration	<ul style="list-style-type: none">2 Decks of JiJi Creature Cards. These cards will need to be printed. ORDeck of cards with face cards and tens removed. Ace equals 1.	Addition pairs to make 10
Number Line Bingo	<ul style="list-style-type: none">Deck of cards with face cards removedNumber line 0 to 20 for each player. You may print the number line provided or make your own.4 small markers for each player (e.g., beans)	Addition and subtraction to 20
Tic-Tac-Ten	<ul style="list-style-type: none">Ace to 10 cards from a deck of cards or a dot cubeTic-Tack-Ten board. This may be printed or you can make your own.Small game pieces or markers	Numbers and addition to ten
Addition Connect Four	<ul style="list-style-type: none">Two paper clipsTwo different color chips or game piecesGame Board. This must be printed.	Addition to 20
Sudoku	<ul style="list-style-type: none">JiJi Sudoku board and cut out JiJi cardsSudoku boards with numbersThese game boards and JiJi cards must be printed.	Problem solving



Three Card Make Ten

For 2 to 4 Players

Supplies:

- Deck of Cards, face cards removed



Ace = 1
2-10 = face value

How to Play:

1. Shuffle the cards and deal three cards to each player. Place the rest of the cards in the center face down.
2. Players add and/or subtract their three cards to make ten. Players take turns showing how ten was made using their 3 cards. If the cards make ten, they put those cards down and pick 3 more cards from the deck.
3. If a player cannot make ten, they pick a card from the deck and their turn ends.
4. Play continues until all of the cards are gone from the center deck and there are no other plays. The winner is the player with the most cards.

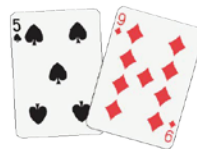


Addition War

For 2 Players

Supplies:

- Deck of Cards, face cards removed



Ace = 1
2-10 = face value

How to Play:

1. Shuffle the cards. Deal all of the cards to the two players and leave them in a stack, face down.
2. The players put their top two cards face up in front of them.
3. Each player adds his or her cards.
4. The player with the greatest sum gets all 4 cards.
5. If both sums are equal, the play continues until there is a greater sum. The player with the greater sum takes all of the cards played in that round.
6. The winner is the player with the most cards at the end of the game.



Pyramid Make Ten

For 1 Player or 2 Players as partners

Ace = 1
2-10 = face value

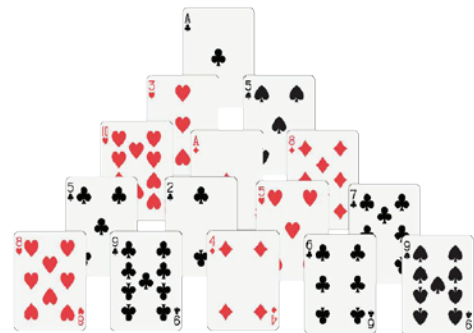
Supplies:

- Deck of cards with face cards removed

How to Play:

1. Shuffle the cards.
2. Deal cards into a pyramid (see diagram).
3. Form a pyramid of cards beginning at the top with one card so that each new level partially covers the level above it.
4. Place three cards face up beside the pyramid.
5. Remove any uncovered ten card or any two uncovered cards that add up to ten.
6. If there are no cards that can be removed, place three new cards face-up on top of the three cards.
7. Play continues until there are no cards that can be removed and there are no more cards in the deck.
8. The object of the game is to remove all of the cards in the pyramid.

- In this example, the 10 card can be removed and one of the 6 cards and 4 card can be removed.
- If the 6 card in the bottom row and the 4 card in the bottom row are removed, the 5 card in the second row will be uncovered and playable.
- The 7 and 3 cannot be removed because the 7 is partially covered by the 9 card.





Number Line Race

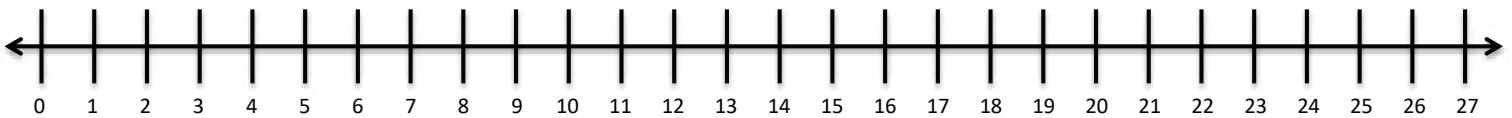
For 2 Players

Supplies:

- 2 number or dot cubes
- 2 game pieces
- 2 index cards. Draw a + sign on one and a - sign on the other.
- Paper bag
- Number line 0-27 (use this one or make your own)

How to Play:

1. Decide who goes first. Take turns playing.
2. Put the index cards in a bag.
3. Player 1 rolls the dot cube and selects an index card from the bag.
4. They move the number of places rolled on the number line.
5. Plus (+) moves right to left on the number line. Minus (-) moves left to right on the number line.
6. If they cannot move the number of spaces rolled, they lose their turn.
7. The winner is the first person who reaches 27 on the number line.



Make Ten Concentration

For 2 to 4 Players

Supplies:

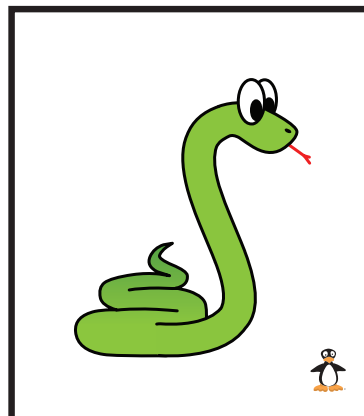
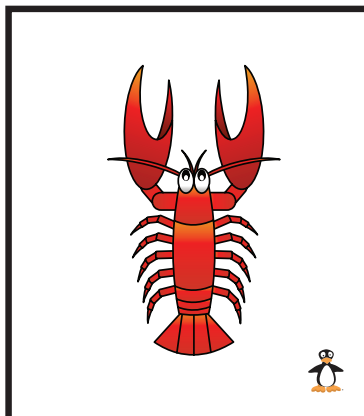
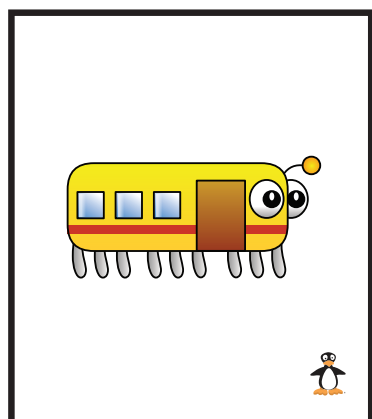
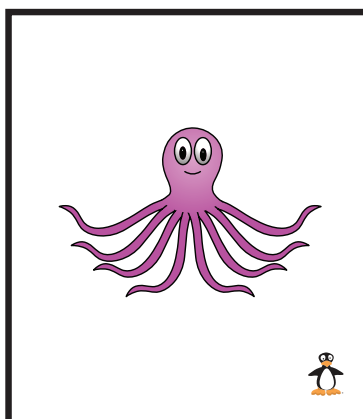
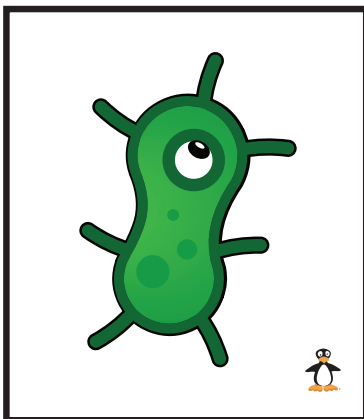
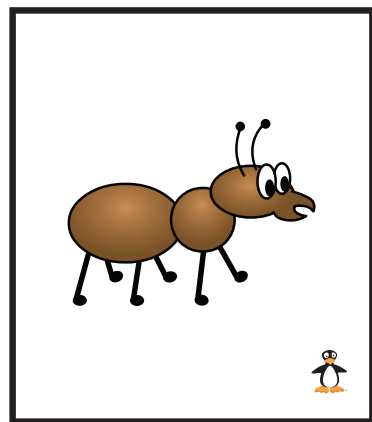
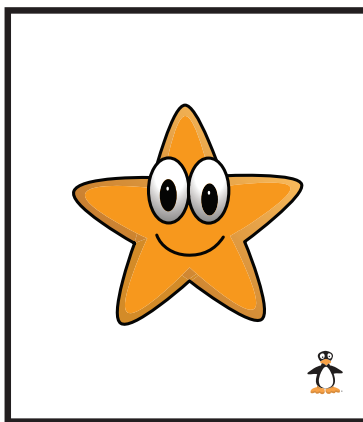
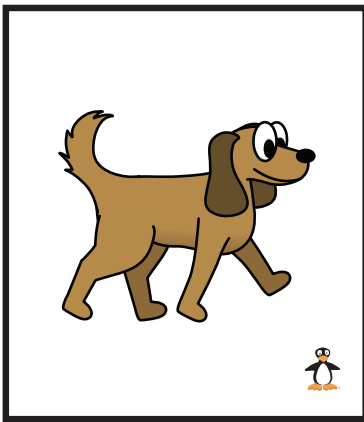
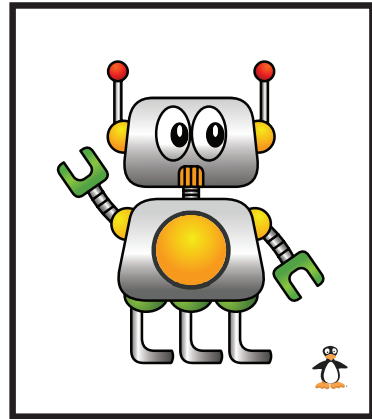
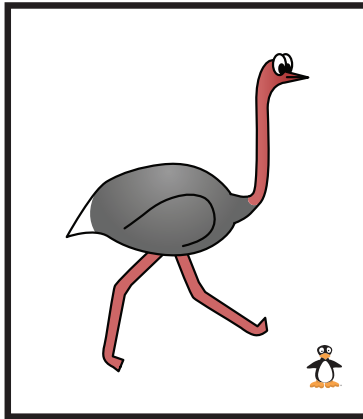
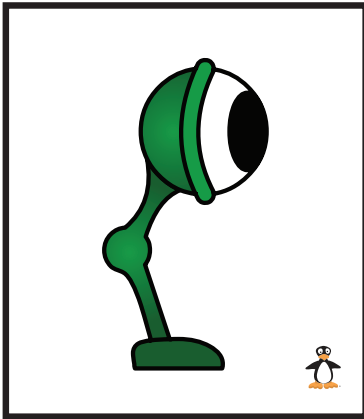
- 2 decks of JiJi Creature Cards

How to Play:

1. Shuffle the cards and place them face down in an array.
2. Players take turns flipping two cards face up.
3. If the cards (number of feet) add up to 10, the player keeps those cards.
4. If the cards do not add up to 10, they are turned face down.
5. The player plays until they do not have a make-ten match.
6. Play continues until all cards are removed.
7. The winner is the player with the most cards.



Creature Cards





Number Line Bingo

For 2 to 4 Players

Supplies:

- 1 deck of cards with face cards removed
- Number line 0 to 20 for each player
- 4 centimeter cubes for each player

How to Play:

1. Shuffle cards and place face down in the center.
2. Each player places their centimeter cubes on various numbers on their number line. (They can place more than one cube on the same number.)
3. Players take turns flipping over two cards at a time. Each player can decide to add or subtract the numbers on the cards. If their sum or difference is a number that they have a cube on, they get to remove the cube. If they have more than one cube on a number they can only remove one of the cubes.



Tic-Tac-Ten

For 2 Players

Supplies:

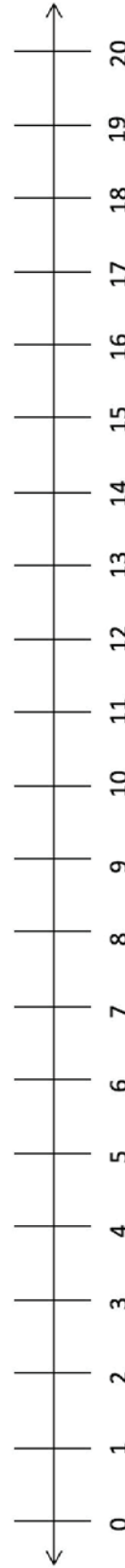
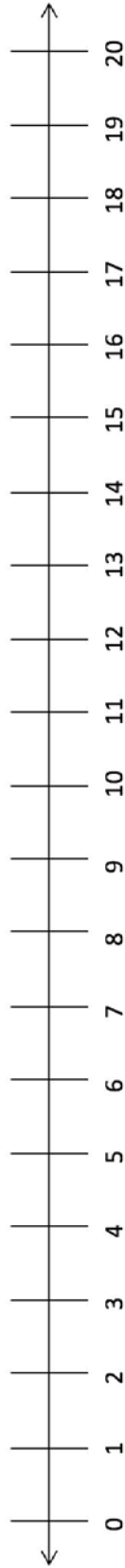
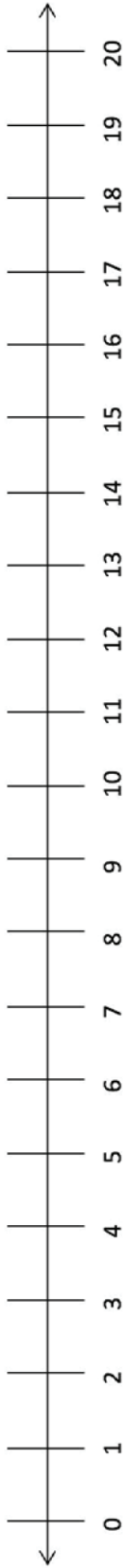
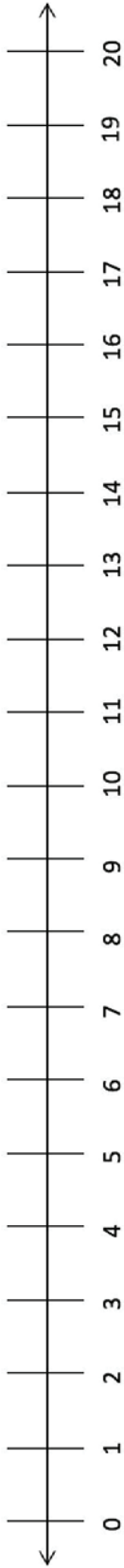
- Ace-10 cards from a deck of cards or a dot cube
- Tic-Tac-Ten board
- Small game pieces

How to Play:

1. Take turns picking a card or throwing the dot cube. Place that number of dots in one of the ten frames on the board.
2. Put all of your dots in only one ten frame. You cannot split them up and you cannot have more than ten dots in a frame. You must use all of the dots.
3. The player who completes a ten frame puts a marker in that square.
4. If a player cannot place all of their dots in one frame, they lose their turn.
5. The winner is the player who has three markers in a row (across, up and down, or diagonal).

Number Line Bingo

Cut out number lines



Tic-Tac-Ten Game Board

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Addition Connect Four

For 2 Players

Supplies:

- Two paper clips
- Two different color chips or game pieces

How to Play:

1. Player One places a paper clip on a number on the bottom strip.
2. Player Two places a paper clip on a number on the bottom strip, adds the two numbers, and places their piece on that number (sum) on the board.
3. Player One moves one paper clip, adds the two numbers, and places their piece on that number (sum) on the board.
4. Play continues until one player has 4 of their pieces in a row, on the board, without any of the opponent's markers in between their four markers (across, up and down, or diagonal).
5. The first player with four pieces in a row wins.

Examples

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

12	15	20	16	9	20	15
13	18	10	12	19	9	
11	8	14	10	16		
10	10	15	19			
13	20	12	5			

12	15	20	16	7	9	20	15
13	18	10	20	15	12	19	9
11	8	17	13	18	14	10	16
10	10	15	19				

Non-Examples

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

12	15	20	16	7	9	20	15
13	18	10	20	15	12	19	9
11	8	13	18	14	10	16	
10	10	15	19				
13	20	12	5				

12	15	20	16	7	9	20	15
13	18	20	15	12	19	9	
11	8	13	18	14	10	16	
10	10	15	19				

Addition Connect Four

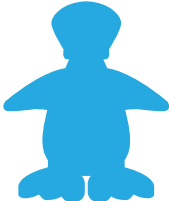
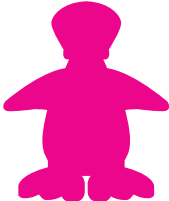
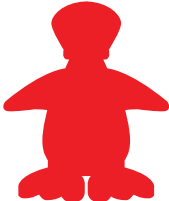
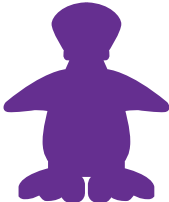
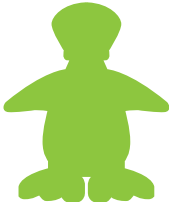
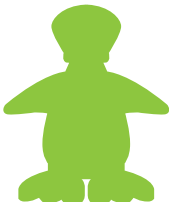
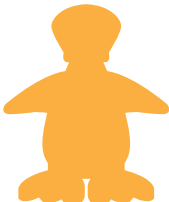
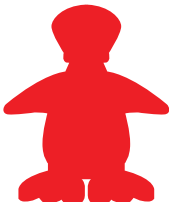
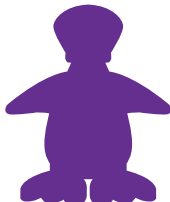
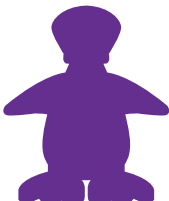
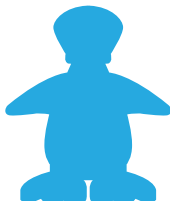
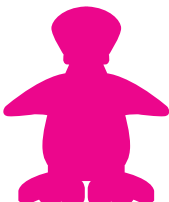
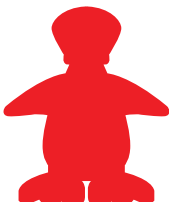
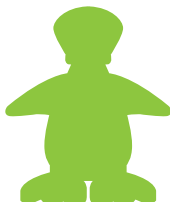
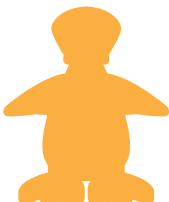
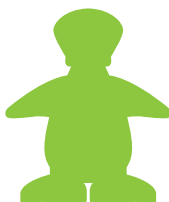
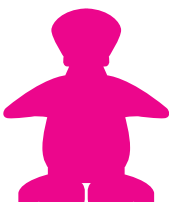
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13	18	10	20	15	12	19	9
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10	6	14	11	9	10	15	19
13	16	4	8	17	20	12	5

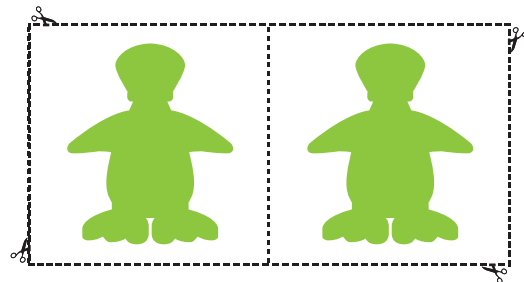
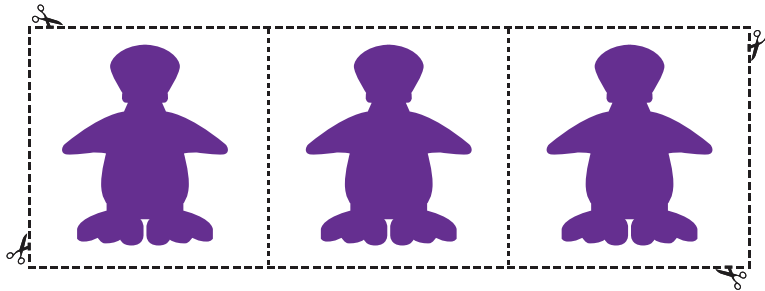
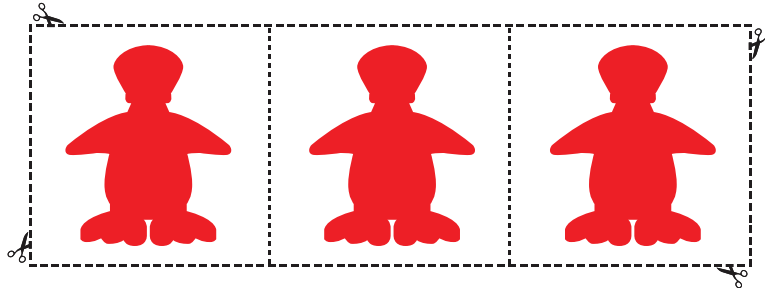
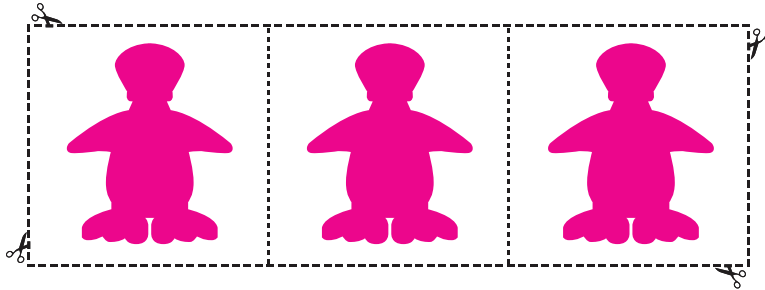
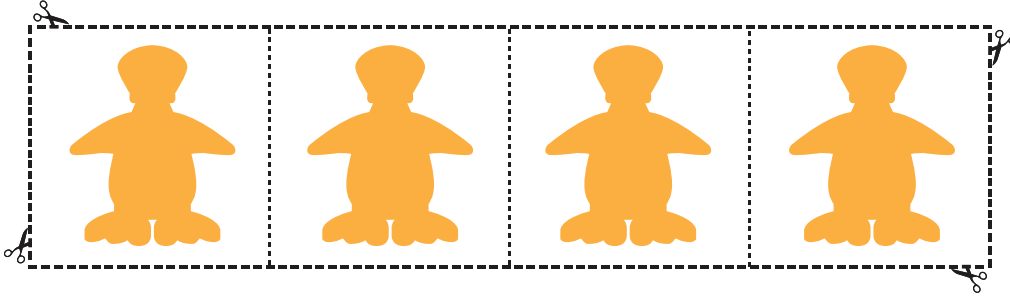
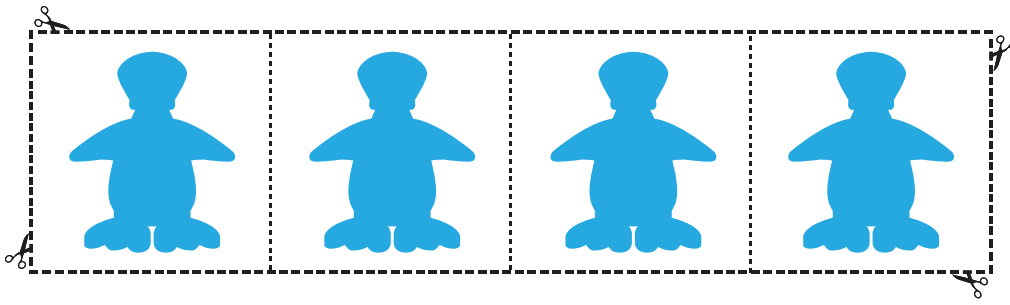
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
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JiJi Sudoku

Difficulty Level: Easy



JiJi Sudoku

Difficulty Level: Easy
Puzzle pieces

3			2
	4	1	
	3	2	
4			1

Beginner

2	3	4	1
3	4	1	2

Beginner

						9	2	6
2	6		9	1		5		
	5	4		3				
6			8		5		9	7
8								1
5	4		1		9			2
				2		1	6	
		2		9	6		3	5
3	8	6						

Easy

	9	3	1		5	6	4	
7								5
5		1	2		9	3		7
2								3
	3	6	9		7	5	2	
9								1
3		2	4		8	1		9
6								4
	4	7	3		2	8	5	

Easy