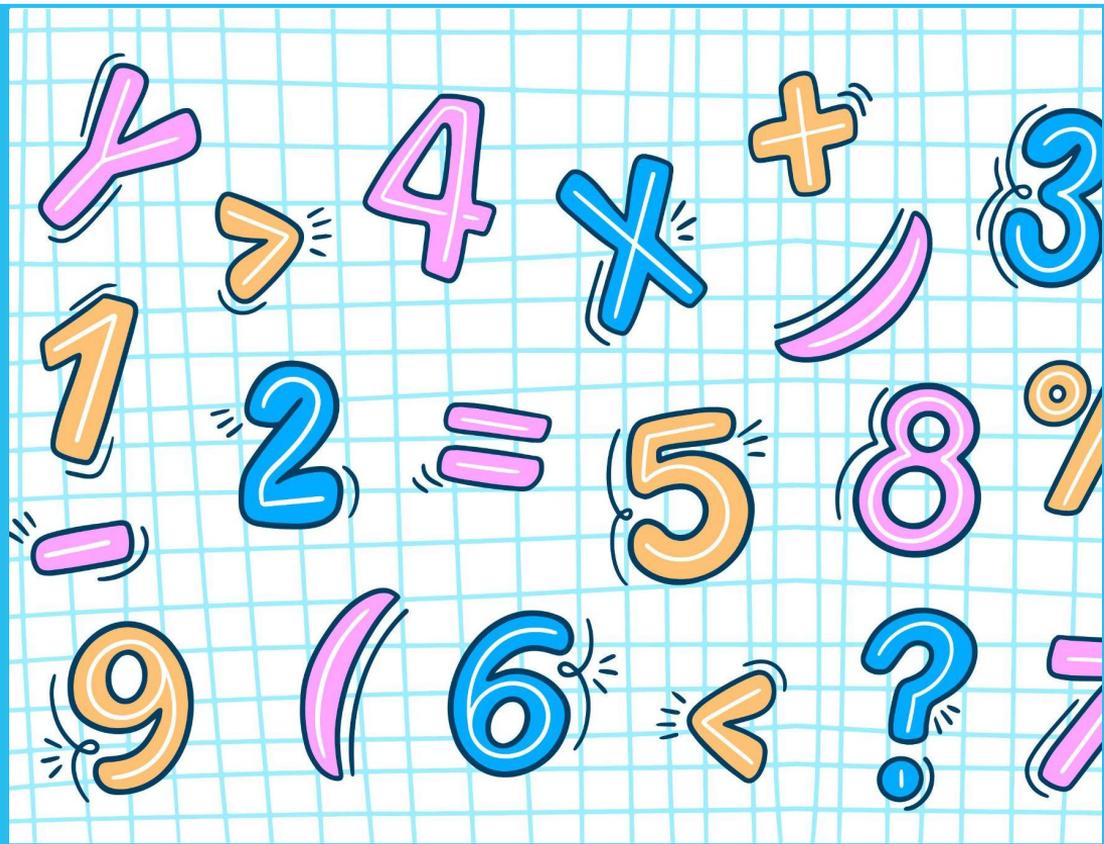


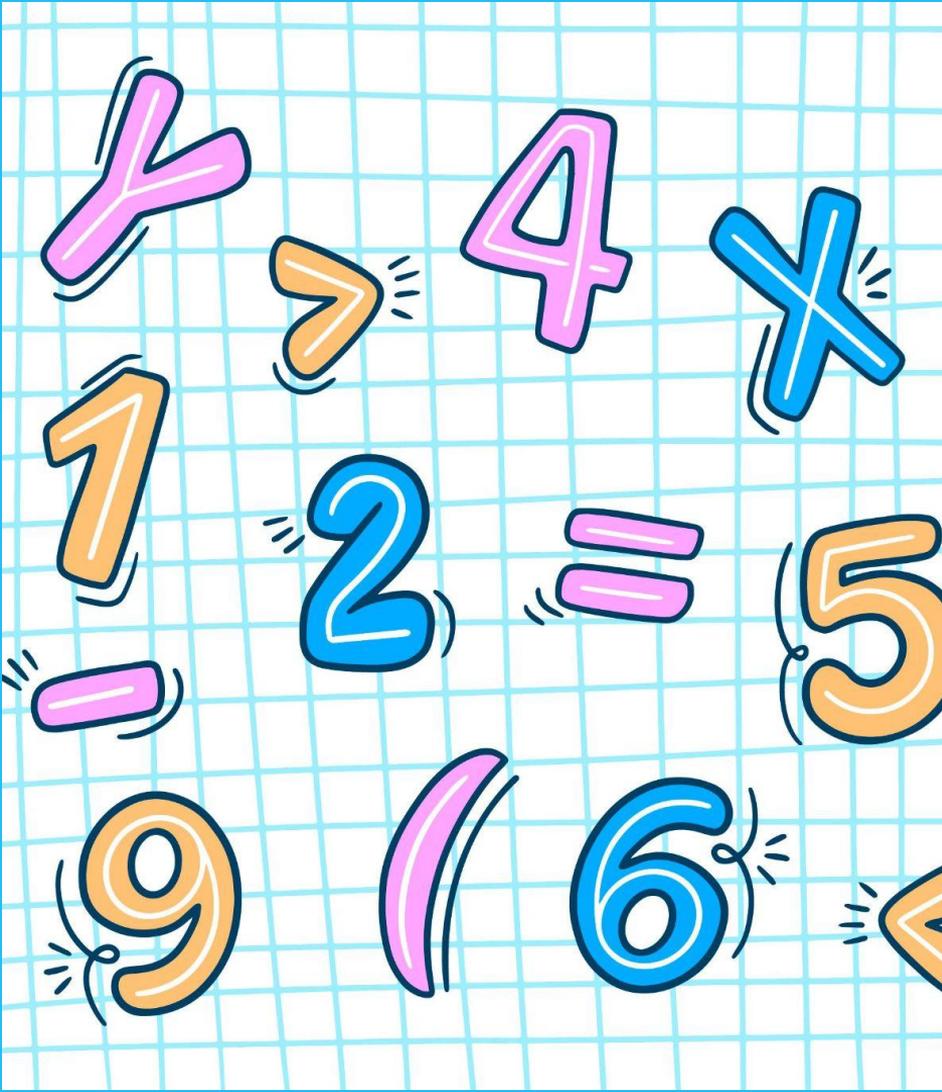
 **MATH
GAMES**

August - September 2023

Science - Positional Value

4th and 5th Form





SECUENCIAS
DIDÁCTICAS
PRIMARIAS
BILINGÜES

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OBJETIVOS

OBJETIVOS DE APRENDIZAJE DE MATEMÁTICA VINCULADOS CON INGLÉS

- ❑ Establecer regularidades de la serie numérica oral y escrita para interpretar, producir y comparar escrituras numéricas de hasta tres o cuatro cifras.
- ❑ Componer y descomponer números en forma aditiva y multiplicativa analizando el valor posicional de las cifras.
- ❑ Resolver problemas que remitan a diferentes significados de la suma y de la resta, bajo distintas formas de presentación, que puedan ser abordados mediante distintos recursos de cálculo (por ejemplo, cálculos mentales exactos y aproximados, algorítmicos, etcétera).
- ❑ Realizar cálculos mentales de suma y resta basándose en descomposiciones de los números y en resultados conocidos.
- ❑ Ampliar y utilizar el repertorio de resultados de sumas y restas para resolver nuevos cálculos y para construir una justificación de sus resultados apelando a relaciones entre ellos.



OBJETIVOS

OBJETIVOS DE APRENDIZAJE DE INGLÉS VINCULADOS CON JUEGOS MATEMÁTICOS

- ❑ Comprender la idea global y/o información específica en situaciones problemáticas.
- ❑ Comprender explicaciones e instrucciones sencillas para realizar acciones.
- ❑ Formular preguntas a sus maestros/as y sus compañeros/as para resolver situaciones problemáticas.
- ❑ Desarrollar fluidez al hablar sobre problemas matemáticos relacionados al sistema de numeración y a las operaciones de suma y resta con números naturales
- ❑ Interactuar colaborativamente entre compañeros/as en el proceso de construcción de conocimientos matemáticos.
- ❑ Producir oraciones o frases cortas sobre problemas matemáticos relacionados al sistema de numeración y a las operaciones de suma y resta con números naturales.

NOTA: el término sencillo refiere a palabras y expresiones de la lengua que resulten accesibles dentro de un contexto conocido o familiar.



CONTENIDOS

BLOQUE

| SISTEMA DE NUMERACIÓN

Análisis del Valor posicional.

ALCANCES

❑ Analizar el valor que representan las cifras en una escritura numérica, apelando a diferentes contextos como la calculadora, el dinero o juego de dados.

❑ Componer o descomponer una cantidad a partir de agrupamientos de unos, dieces, cienes y miles.

ALCANCES

| EN INGLÉS

❑ Apreciación, con la ayuda del/de la docente, de las similitudes y diferencias entre las regularidades numéricas en la cultura de la L2 (por ejemplo, *Teen numbers are between ten and twenty.*). Construcciones y frases de la L2 para la comprensión y expresión de conceptos y funciones comunicativas del nivel que indican: cantidad de billetes, dados, decenas, centenas, etc. (por ejemplo, *How many 10-peso banknotes fit in a 100 banknote?*)



CONTENIDOS

IDEAS BÁSICAS

- ❑ Reflexionar sobre **cómo funciona el sistema de numeración** a partir del uso de los números en situaciones lúdicas.
- ❑ Analizar regularidades de la serie oral y escrita en números de tres y cuatro cifras.





ORIENTACIONES PARA LA ENSEÑANZA

Las actividades sugeridas son tomadas de documentos curriculares del GCBA y tienen un formato de juego, lo cual representa una doble ventaja. Por un lado, **el marco lúdico** permite que los/as alumnos/as las aborden con cierto entusiasmo, que ensayen más abiertamente recursos personales, y también habilita que se puedan volver a plantear. La segunda ventaja es que es posible que los/as alumnos/as conozcan algunas de las actividades y, por lo tanto, su presentación pueda resultar menos costosa. Una cuestión fundamental a considerar es que es la primera vez que los/as alumnos/as **entran en contacto con el vocabulario específico del área en la L2.**

Si bien ya han aprendido a decir números en inglés como parte del vocabulario de las áreas de conocimiento en el primer ciclo, la frecuencia de su uso y la **especificidad propia del área de matemática** es mucho mayor y más versátil. Es por esto que es particularmente importante trabajar con anticipación en la pronunciación de palabras y frases que puedan eventualmente generar dificultad a la hora de interactuar en las diferentes propuestas lúdicas e instancias de reflexión metacognitiva.



ORIENTACIONES PARA LA ENSEÑANZA

Las actividades sobre sistema de numeración que buscan poner de relieve las regularidades del sistema (“las cosas que suceden siempre”) y las razones a las que obedecen, requieren ser retomadas y analizadas colectivamente. Los/as alumnos/as no identificarán esas regularidades solo por el hecho de transitar los juegos, sino que se hace necesario retomar, entre todos/as, las estrategias, buscando reconocer qué sucede y tratando de explicar por qué sucede eso.

POR EJEMPLO

Si se trata de averiguar cómo convertir, sin borrar, el número 1853 en el número 1453 en la calculadora, se podría analizar por qué es posible saber que hay que restar 400, y no 40 o 4, poder identificar, entre todos/as, y con ayuda del/de la docente, que el número disminuye 4 del orden de las centenas, etc.



CHECK YOUR LEARNING: CHECKLIST

CONTENT

- ❑ Analyse the positional value of the digits in a written number using different contexts, such as a calculator, money or a dice game.
- ❑ Put together or break apart a certain quantity, starting from groups of digits, teens, hundreds and thousands.

COGNITION

- ❑ Reflection about the positional value of numbers containing three-four digits.
- ❑ Solving of problematic situations related to the game. Reflection.
- ❑ Production and interpretation of numbers containing three-four digits.
- ❑ Identification and analysis of the oral and written series' regularities of numbers containing three-four digits.

COMMUNICATION

Rules of the game and agreements; questions and answers.

- ❑ **Lexical items:** numbers from 1 to 9999.
- ❑ **Language exponents:** board hundreds, tens, bigger, smaller, after, before, between, guess, numbers, banknotes, coins, dice, thousand, cards.

CULTURE

Appreciation, with the help of the teacher, of similarities and differences between numeric regularities in L1 and L2 cultures (for example, “*Teen numbers are between ten and twenty*”). Sentences and phrases in L2 necessary to understand and express concepts and fulfill communicative functions according to the level: quantity of banknotes, dice, teens, hundreds, etc. (for example, “*How many 10 pesos banknotes fit in a 100 pesos banknote?*”).



GAME: problems with dice

MATERIALS



- 4 dice (every four students)
- Calculator (optional)

Activity taken from [*Propuestas de actividades para el logro de los objetivos de aprendizaje*](#), Problemas con dados”, p. 56. (visited in July, 2023).

Students will play in **groups of four**. It may be played with **three or four dice**. It is not necessary for the children to know the thousands; they can learn them by playing.

INSTRUCTIONS

FIRST, STUDENTS WILL PLAY WITH THREE DICE.

❑ One dice will be **SUPER MAGIC**: each spot of the dice will be worth a hundred points. One dice will be **MAGIC**: each spot will be worth ten points. One dice will be **ORDINARY**.

❑ Students will toss the dice and choose which one is the **SUPER MAGIC** dice, **THE MAGIC** dice and **THE ORDINARY** dice.

❑ After playing the game 3 or 4 times, the teacher may model how to get a high number or a low number.

All students will write down the numbers they and their classmates get in a chart.

LANGUAGE OF LEARNING

WORD BANK

- ❑ Dice
- ❑ Thousand
- ❑ Throw the dice/ toss the dice
- ❑ It's your/my turn
- ❑ What dice is a **SUPER MAGIC/MAGIC/ORDINARY** dice? ❑ What dice did you choose? Why?
- ❑ Is this number the highest? the lowest? Is this the highest number you can get?
- ❑ Where would you place it?



GAME VARIATIONS

The first one to reach 10 loses.

You may include a fourth die.

The first student in the group that reaches scores 20 points wins.

The first student in the group that reaches number 20 loses.





GAME: problems with dice

SUPER MAGIC DICE	MAGIC DICE	REGULAR DICE	FINAL NUMBER	SCORE



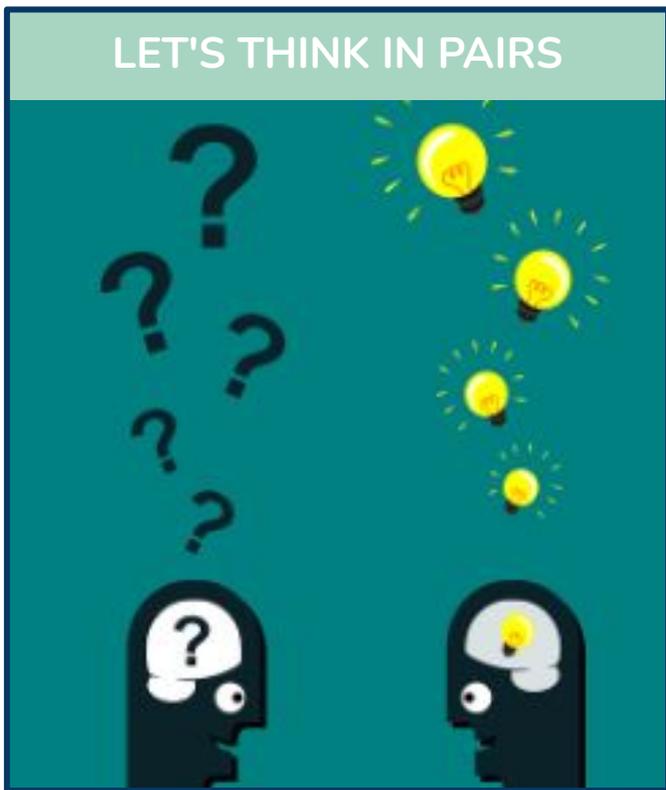
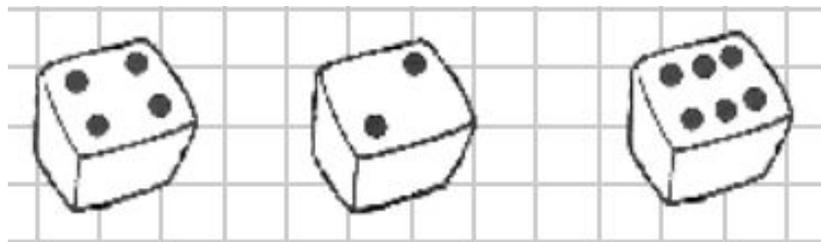


Image from Pixabay



SOME BOYS ARE PLAYING WITH THREE DICE. A BOY GETS THESE DICE.

- What is the best value of each dice? What is the number?
- What are the possible numbers if he doesn't give to each dice the best value?

Another boy writes **624** in his chart. Can he write a higher number? If your answer is YES, write the higher number.

Actividad adaptada de [Propuestas de actividades para el logro de los objetivos de aprendizaje](#), "Problemas con dados. Problemas que remiten al juego", p. 61. (visited in July, 2023)

CAN YOU SOLVE THESE PROBLEMS ALONE?



Image from Pixabay



SOME FRIENDS ARE PLAYING WITH THREE DICE.

- ▣ *A girl gets these dice.*
- ▣ *What is the best value of each dice?*
- ▣ *What is the number?*

A boy gets **522**. Can you draw the dice?



Remember to ask students to write the number





Numbers from 1 to 1000 - Language of learning: word wall

- ❑ If the chart with the written form of numbers is not on the wall yet, the teacher may use this game as an opportunity to complete it, with the help of the group.
- ❑ It may be a good idea to hang the new chart next to (or near) the other one -see slide 10-, so that students can have the language of learning at hand.
- ❑ The students will need to have a copy in their binders too.
- ❑ Before playing the game, the teacher may ask the students to “kill the mosquito” on a certain number, to make sure everyone can follow the game that is about to be played (round numbers).
- ❑ Option B: the teacher chooses up to ten different numbers (9876 - 7689 - 8769 - 7689 - ...)

CONTENT AND COMMUNICATION - Thousands

1.000	One thousand
2.000	Two thousand
3.000	Three thousand
4.000	Four thousand
5.000	Five thousand
6.000	Six thousand
7.000	Seven thousand
8.000	Eight thousand
9.000	Nine thousand



GAME: The pile of Banknotes

MATERIALS



- At least,50 flashcards with numbers of three or four digits.
- Banknotes and coins (\$1000, \$100, \$10, \$1)

Activity taken from [Jugar y enseñar matemática. Orientaciones para docentes](#), “La pila de billetes”, p. 33.

Students will play in small groups. One of the students may get the number **905** and the student next to him may get **950**. The teacher may ask about the difference in these two numbers. “Do you choose the same banknotes?” In this way, students can reflect upon the positional value.

INSTRUCTIONS

- ❑ Each player gets a number (flashcard) or more.
- ❑ The banknotes and coins are at the centre of the desk.
- ❑ Each student has to make a pile with the banknotes and coins to reach the number in the flashcard.



LET'S THINK IN PAIRS



Image from Pixabay

Sebastián took 3 banknotes worth **\$1.000**, 4 banknotes worth **\$10** and 2 coins worth **\$1**.
What card did he get?



TASK: Role play

- S. Good morning
- Sh. A. Good morning. Can I help you?
- S. Yes, give me some apples, please.
- Sh. A. Here you are?
- S. Thank you.
- Sh.A. Would you like to buy a coconut?
- S. No, thank you. Are there any mangoes?
- SH. No, there aren't.
- S. Are there any tomatoes?
- SH.A. Yes, there are.
- S. How much is it?
- SH. A. Its...pounds
- S. Here you are. Bye
- Sh. A. Have a nice day.



SOME QUESTIONS TO TALK ABOUT AFTER THE DIALOGUE

If she has to pay **603**. and she pays with 6 banknotes of **\$100** and 3 of **\$10** is it ok? Why or why not?

Can you use 2 banknotes of **\$1,000**, one banknote of **\$10** and 8 banknotes of a **\$100** to pay **2.810**?

STUDENTS WILL CHOOSE THE BANKNOTES THEY NEED TO PAY. ROLE PLAY AS MANY TIMES AS YOU CAN. CHANGE THE DIALOGUE, ADD AND INVENT.

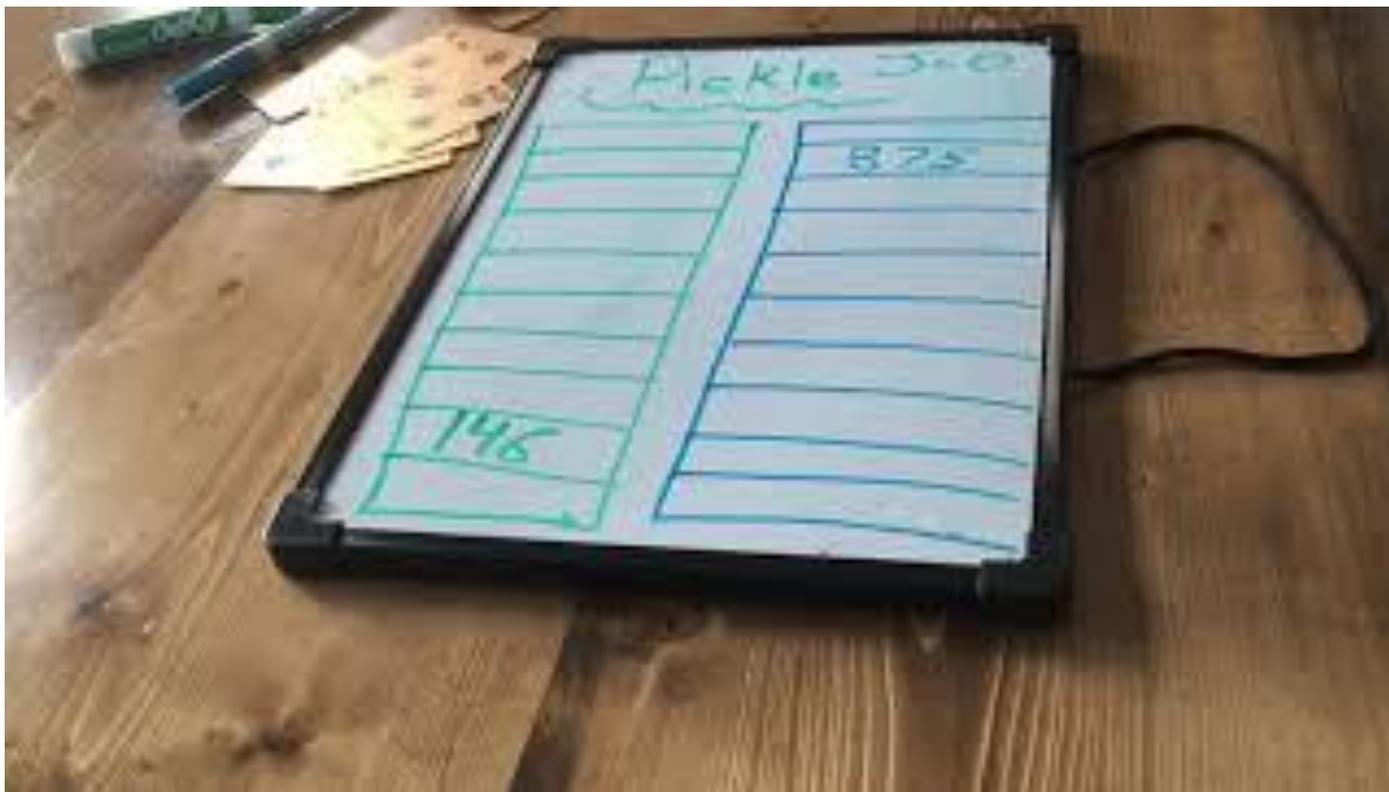
STUDENTS WILL WORK IN SMALL GROUPS

A man was paid with three banknotes of \$1000, nine banknotes of \$100 and four banknotes of \$1. How much money did he get?

If a man needs \$3000, is it enough if someone gives him nine banknotes worth \$100 each?

At the market, a man paid with nine banknotes worth \$100, five banknotes worth \$10 and nine coins worth \$ 1. How much did he pay?





Video de YouTube, Julio, 2023



Students watch the video and complete the chart. Oona and Arthurius are visiting Argentina. They want to buy two kilograms of apples that cost **\$750**. Is it ok if they pay with one banknote worth **\$200**, five banknotes worth **\$100** and one banknote worth **\$50**?

Argentina	Peso
USA	
UK	Pound sterling or Great British Pound
Europe	
Japan	
South Africa	South African rand (ZAR)



Video de YouTube, Julio., 2023

TEACHERS SHOW STUDENTS THE DIFFERENT TYPES OF BANKNOTES

Banknotes in Argentina

https://www.bcra.gob.ar/MediosPagos/Nueva_familia_billetes_i.asp
<https://www.argentina.gob.ar/noticias/heroinas-y-heroes-de-nuestra-historia-vuelven-ilustrar-los-billetes-de-pesos-argentinos> 13-07-2023

Banknotes in USA

<https://www.uscurrency.gov/denominations> 13-07-2023

Banknotes in the United Kingdom of Great Britain and Northern Ireland

<https://www.bankofengland.co.uk/banknotes/current-banknotes>
13-07-2023

Banknotes in Europe

<https://www.ecb.europa.eu/euro/banknotes/html/index.en.html>
13-07-2023

Banknotes in Japan

https://www.boj.or.jp/en/note_tfigs/note/valid/index.htm 13-07-2023

Banknotes in South Africa

<https://www.resbank.co.za/en/home/what-we-do/banknotes-and-coin>
13-07-2023

ANALYSIS AND REFLECTION - Think, reflect, and collaborate

1. Reflect upon what you/the group learnt.
2. Make a collaborative register with the whole class.

EXAMPLE OF TRIGGER QUESTIONS

- What did you learn?
- What kind of activity or task did you share?
- What is/was special about it (characteristics)?
- Can you name any new numbers?
- Can you write any new numbers?
- Did you learn anything about choosing how to place different numbers to get the results you need?
- Did you learn anything about regularities in numbers in different languages?
- Did you learn anything about the banknotes you need to choose to reach a specific number?
- Is there anything you would like to add?



NOTE: The students may create a special section in their binders where they can keep all the reflections made either in groups or individually. They may also add some lines about themselves when the reflection was made by the whole group.

MATH GAMES

- Can your students identify the tens, hundreds, thousands and units?
- Can your students say the numbers up to 1000?
- Can your students write the numbers up to 1000?
- Can all the students identify the regularities in numbers in English?
- Can your students choose the banknotes they need to reach a certain number?
- Can your students place three or four digits in the best place to get the number that is best for them?
- Can your students use L2 while playing?
- Which students need extra practice?

ENGLISH

- Can your students understand different instructions?
- Can they understand specific vocabulary related to the topics they have been working with?
- Can they talk about their personal opinion related to the games they worked with?
- Can they explain in their own words what they have been learning about?
- Can they interact in English using classroom language and everyday expressions?



Image from Pixabay

G.C.A.B.A., MINISTERIO DE EDUCACIÓN

Propuestas de actividades para el logro de los objetivos de aprendizaje. Matemática, primer ciclo

G.C.A.B.A., MINISTERIO DE EDUCACIÓN

Jugar y enseñar matemática. Orientaciones para docentes