Hunting
the Riddles

2023 / 2024

THE BOOKLET

ALSACE
Collectivité européenne

Do you Like mathematical riddles?
a little, a lot or times 4 ?

This course of riddles is offered by the Comité International des Jeux Mathématiques in partnership with the Vaisseau, centre of scientific culture of the European Collectivity of Alsace, for young people from 3 to 12 years and families.

This course and the previous editions were organised by the Vaisseau during the events « La Nuit des Énigmes » in Strasbourg.

The riddles are classified into three levels. Each participant has to solve as many riddles as possible in an hour, alone or with friends or family.
But beware ! in the booklet the statements are incomplete. Additional clues must be discovered to solve them !

This booklet contains all the information you need to organize your own course « Hunting te Riddles ».

INSTRUCTIONS

LUNA

This symbol in front of a statement indicates that it is possible to search for the puzzle from the **CE level**.

CÉLESTIN

This symbol in front of a statement indicates that it is possible to search for the puzzle from the **CM level**.

STELLA

This symbol in front of a statement indicates that it is possible to search for the puzzle from the **C1 level**.

THE FLASHLIGHT

As soon as you see this symbol, it is that the clue, the question or the instruction is hidden !

It's up to you to find it to solve the riddle.

Riddle 1

PEARL NECKLACES

Luna, Célestin and Stella put on pearls to make necklaces. For this, they reproduce the pattern below several times :

Statement 1

This is the necklace that Luna started :

> **Discover Luna's hidden question.**

Statement 2

Célestin put more pearls on his necklace.

> **Discover Célestin's hidden question.**

Statement 3

For her necklace, Stella just put on her 50th red pearl.
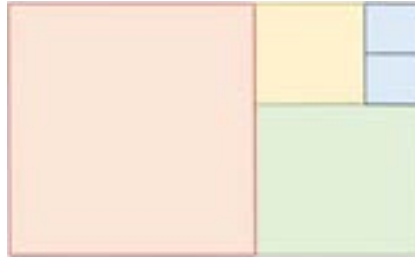
> **Discover Stella's hidden question.**

Riddle ②

ASSEMBLIES

Assembling

Statement 1 🌙 ⭐ 🌠

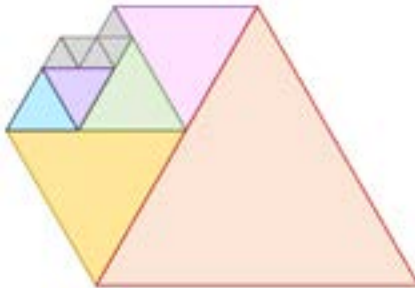Luna built this puzzle using five squares.

> 🔦 **Discover how much the side of a blue square measures.**

How much does the side of the red square measure ?

Statement 2 ⭐ 🌠

Célestin built this puzzle using eleven equilateral triangles.
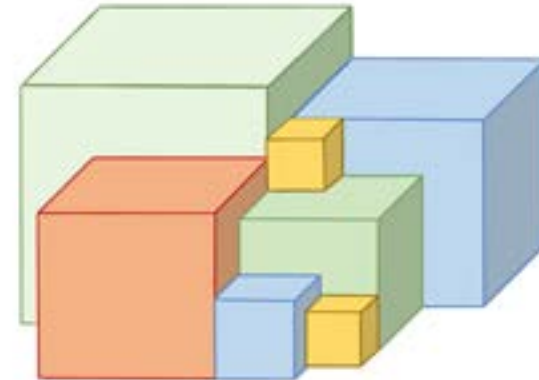

> 🔦 **Discover how much the side of a grey triangle measures.**

How much does the side of the red equilateral triangle measure ?

Statement 3 🌠

Stella glued seven cubes side against side. The largest cube has a 9 cm edge.

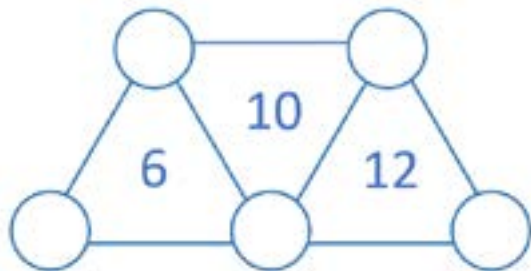> 🔦 **Discover how much the edge of a yellow cube measures.**

How much does the edge of the red cube measure ?

Riddle ③

PLACING NUMBERS

Statement 1 🌙⭐🌟

Luna wants to place the numbers 1 to 5 in the circles of this diagram.

1 2 3 4 5
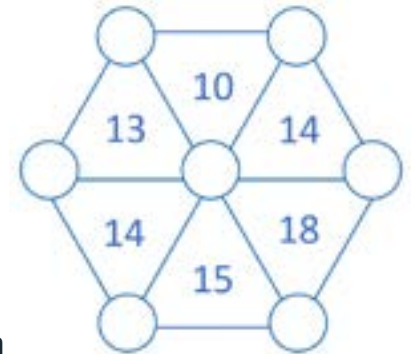
> 🔦 Discover the rule for placing numbers.

Help Luna place the numbers.

Statement 2 ⭐🌟

Célestin wants to place the numbers 1 to 7 in the circles of this diagram.

1 2 3 4 5 6 7

The number inscribed in each triangle gives the sum of the three numbers placed at its vertices.
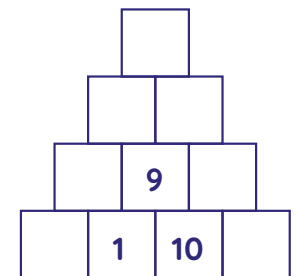
> 🔦 Discover where to place 1 and 3.

Help Celestin place the numbers.

Statement 3 🌟

Stella has already sticked the labels 1, 9 and 10 on three bricks of this construction.

She still has these labels :

2 3 4 5 6 7 8

> 🔦 Discover the rule for sticking labels.

Help Stella stick the other labels.

Riddle (4)

SHARING

Statement 2 ⭐ 🌟

In a field, there are almond and olive trees.
Célestin wants to divide it into 5 plots.
All plots must have the same shape and the same area.
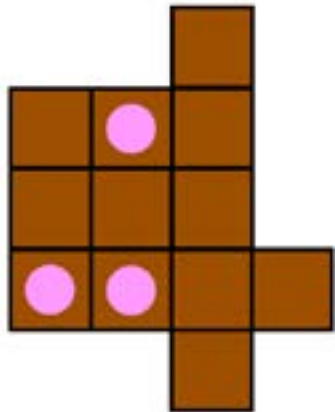Each plot must contain an almond tree and an olive tree.

Statement 1 🌙 ⭐ 🌟

Luna shares this cake fairly with Célestin and Stella.
To help herself, she drew a grid on the cake.

⚠️ All parts must have the same shape ;
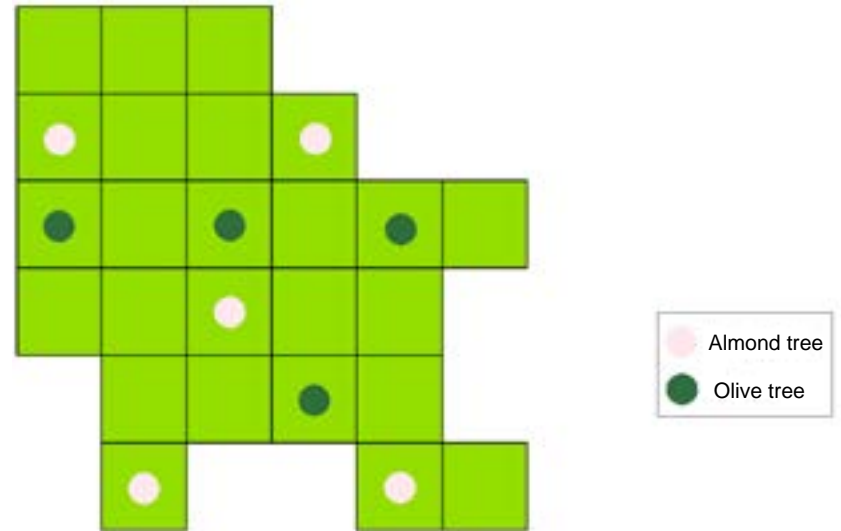each part must contain a pink candy.

⚫ Almond tree
⚫ Olive tree

🔦 **Discover the shape of a part.**

🔦 **Discover where the missing olive tree is.**
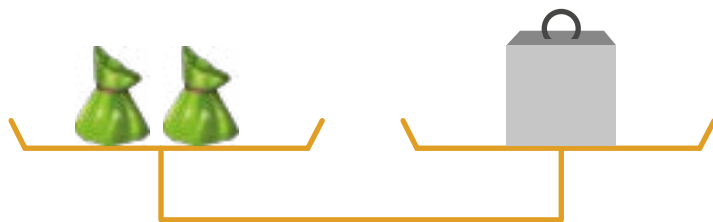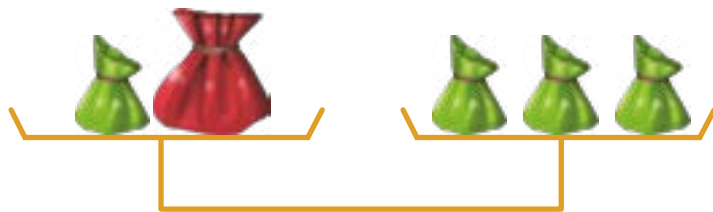
Indicate how Luna shared this cake.

Indicate how Célestin shared this ground.

Riddle 5

BALANCING

Statement 1 🌙 ⭐ 🌠

Luna has little green bags, all identical.
She also has a big red bag.
The two scales below are balanced.

Discover how much the grey mass weighs.

How much does the big red bag weigh ?

Statement 2 ⭐ 🌠

Célestin has apples and pears.
All apples have the same mass.
All pears have the same mass.
The two scales below are balanced.

Discover how much the grey mass weighs.
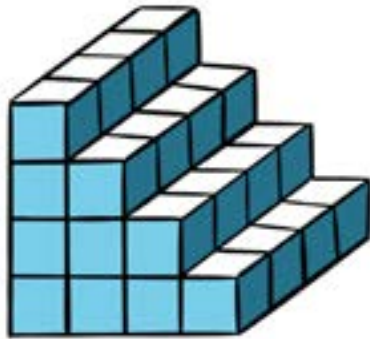
How much does an apple weigh ?
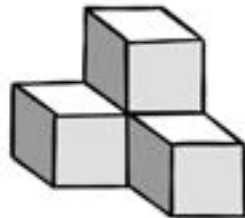
Riddle 6

LITTLE CUBES

Statement 1 🌙⭐🌟

Luna wants to build this staircase using small cube :

🔦≣ **Discover Luna's hidden question.**

Statement 3 🌟

Stella built this construction using small cubes :

🔦≣ **Discover Stella's hidden question.**

Statement 2 ⭐🌟
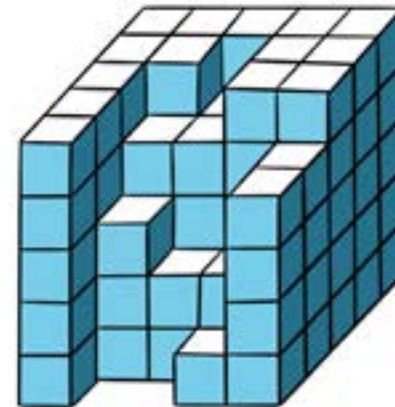
Célestin glued 4 small cubes and obtained this assembly :

He then plunges it into a pot of red paint.

🔦≣ **Discover Célestin's hidden question.**

Riddle 7

MYSTERY OPERATIONS

Statement 1 🌙 ⭐ 💫

Luna discovered a strange operation on an old parchment.

Célestin gave her the following pieces of informations :

- some digits have been replaced by symbols ;

- each symbol represents a digit ;

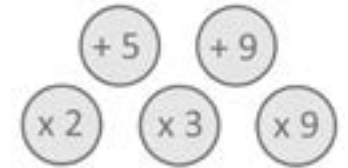- two identical symbols always represent the same digit.

Fortunately, Luna discovered an additional clue.

🔦≣ **Discover the additionnal clue.**

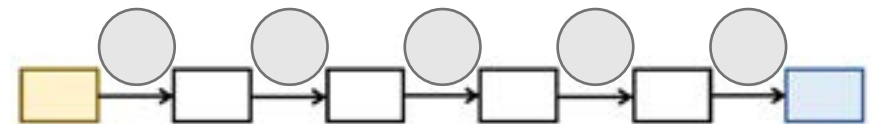**Help Luna find the value of each symbol.**

Statement 2 💫

Stella has mixed up the grey labels that indicate the operations of her calculation program.

She also erased the starting number she chose and all the results obtained.

Here is what remains of her program :

🔦≣ **Discover the result obtained in the blue box.**

What number did Stella put in the yellow box ?

Riddle 8

LOGIC

Statement 1 🌙 ⭐ 🌟

Luna, Célestin and Stella each live in an apartment in a four-storey building.
(Ground floor, 1st floor, 2nd floor, 3rd floor and 4th floor).
The friends give the following indications :

Luna : « I live just above Célestin. »
Célestin : « I have to go down two floors to go to Stella's. »

Discover the indication given by Stella.

What floors do Luna, Célestin and Stella live on ?

Statement 2 ⭐ 🌟

Galaxy and his owl friends, Moly, Kamy, Aly and Samy have fun comparing their size.

Galaxy is bigger than Moly, but smaller than Kamy.

Aly is smaller than Kamy and Moly.

Kamy is not the talest owl.

Discover the hidden question.

Statement 3 🌟

It's April 1st. Luna, Célestin, Stella and Galaxy stick fish on each other's backs.
Everyone only sees the backs of his or her friends and this is what they say :

Luna : « I managed to stick fish on all of the others. »

Célestin : « I see 4 fish total on the backs of my friends. »

Stella : « None of my friends have the same number of fish. »

Galaxy : « Stella has the most fish. »

Discover how many fish have been glued in total.

Find how many fish each person has on his or her back.

Riddle 9

PUZZLES

Statement 1 🌙 ⭐ 🌠

At the funfair, Luna and her three friends won bags of candies.
They notice that there is not the same number of candies in each bag.
Célestin has 12 candies, Stella has 16, and Galaxy has 9.

Discoverhow many sweets Luna has.

The friends decide to divide the candies equally.
For that :
- Stella gives candies to Célestin ;
- Luna gives candies to Galaxy.

Help Stella and Luna find how many candies they have to give.

Statement 2 ⭐ 🌠

Célestin has lunch at the restaurant with Alex, Boris and Diane.
They had to split the bill in four but to celebrate Boris' birthday and Diane's departure for Madagascar, they proceed in this way :
- Boris, Alex and Célestin pay Diane's share fairly ;
- Diane, Alex et Célestin pay Boris'share fairly.

Discover the price of the bill.

Help Célestin calculate how much each will pay.

Statement 3 🌠

In Stella's uncle's farm, there are cows, sheep and ducks.
Stella noted that :

- all animals except 36 are ducks ;
- all animals except 32 are cows.

Discover the number of sheep.

Find how many animals there are in total.
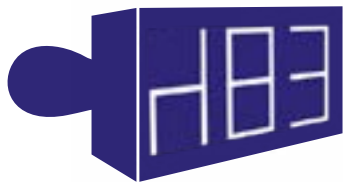
Riddle 10

IMPRINTS

Statement 1 🌙 ⭐ ☄️

Luna left this imprint while walking on the sand.

Discover the hidden question.

Statement 2 ⭐ ☄️

With this stamp,
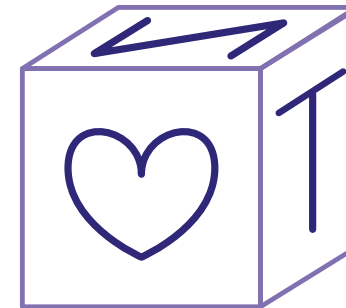Célestin printed 483.

Galaxy used an other stamp.

Discover the number Galaxy got.

Find the inscription on Galaxy's stamp.

Statement 3 ☄️

Stella has a "cube stamp" which allows to obtain 3 imprints.

She puts ink on the 3 sides and rolls this stamp cube.
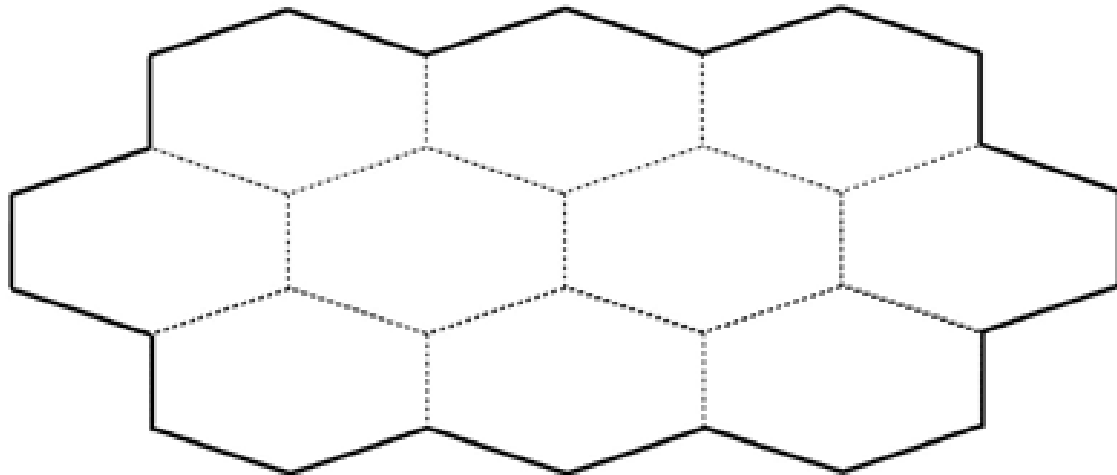
Choose from the proposed answers the trace she gets.

Riddle

Cut the pieces on the right-hand side
and discover the rule of the game
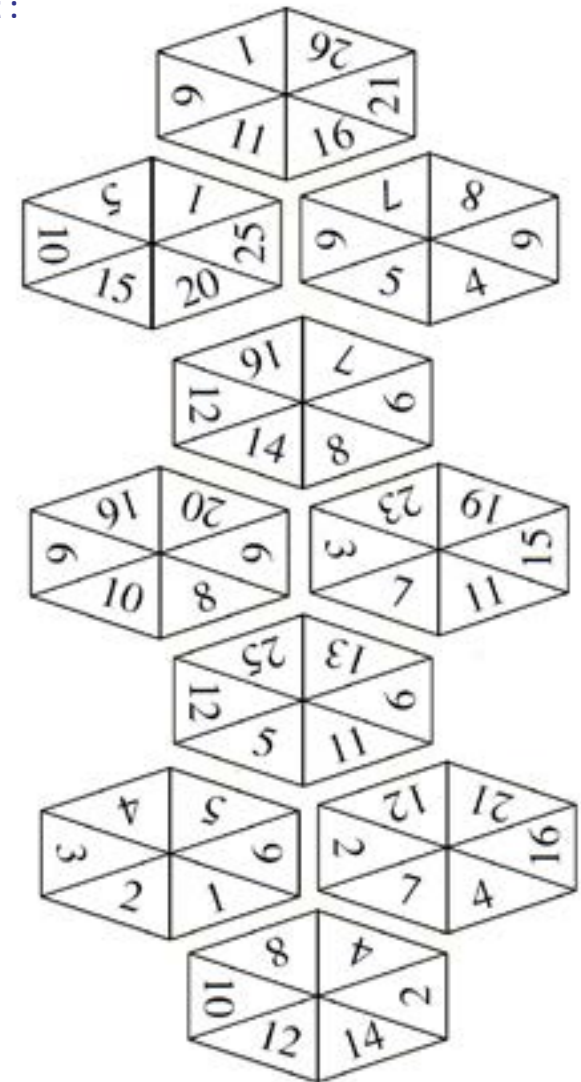in the video (in french).

Board to complete :

**The « Mathematiques sans Frontières » Youtube
channel offers other mathematical riddles and
curiosities in video !**

Pieces to cut :

ADDITIONAL CLUES TO HIDE

Memo
- ☾ to search from cycle 2
- ★ to search from cycle 3
- ☀ to search from cycle 4

✂ -

Riddle 1

☾★☀ What will be the color of the 15th pearl of Luna's necklace ?

★☀ What is the color of the 64th pearl of Célestin's necklace ?
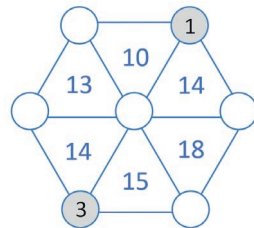
☀ How many pearls did Stella use in total ?

✂ -

Riddle 2

☾★☀ A blue square has a side measuring 1 cm.

★☀ A grey equilateral triangle has a side measuring 1 cm.

☀ The two yellow cubes are identical and have an edge measuring 2 cm.

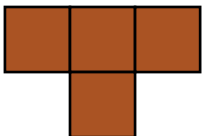✂ -

Riddle 3

☾★☀ The number written in each triangle gives the sum of the three numbers placed at its vertices.

★☀

(hexagon diagram with numbers: 1, 10, 13, 14, 14, 18, 15, 3)

☀ The difference between the numbers written on two bricks which are side by side is equal to the number written on the brick placed above them.

✂ -

Riddle 4

☾★☀

★☀ The missing olive tree is on the 2nd square of the first line.

Riddle 5

☾★☀ The grey mass weighs 200 g.

★☀ The grey mass weighs 100 g.

✂ -

Riddle 6

☾★☀ How many small cubes will she need ?

★☀ How many sides of small cubes were covered with red paint ?

☀ How many small cubes at least must she add to obtain a large cube ?

✂ -

Riddle 7

☾★☀ 🟢 − 🔵 = 1

☀ The result of the program is 613.
Please note the starting number must be an integer.

✂ -

Riddle 8

☾★☀ Stella : « I don't live on the ground floor. »

★☀ Write the owl names from the smallest owl to the largest owl, from left to right.

☀ They used a total of 6 fish.

✂ -

Riddle 9

☾★☀ Luna has 19 candies.

★☀ The bill is 48 €.

☀ There are 15 sheep.

✂ -

Riddle 10

☾★☀ What inscription is written under the sole of Luna's shoe ?
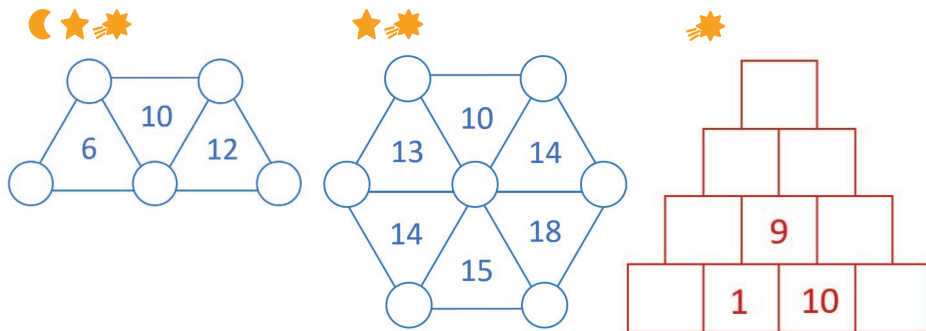
★☀ The number obtained is 2024.

☀ (puzzle with boxes: ИH HN HN / ◇ ♡ △)

RESPONSE BULLETIN

Name :

Surname :

Énigme 1

☾★☄ Answer for Luna's necklace : ....

★☄ Answer for Célestin's necklace : ....

☄ Answer for Stella's necklace : ....

Énigme 2

☾★☄ The side of the red square measures ....cm

★☄ The side of the red triangle measures ....cm

☄ The edge of the red cube measures ....cm

Énigme 3

☾★☄   ★☄   ☄

Énigme 4

☾★☄

★☄
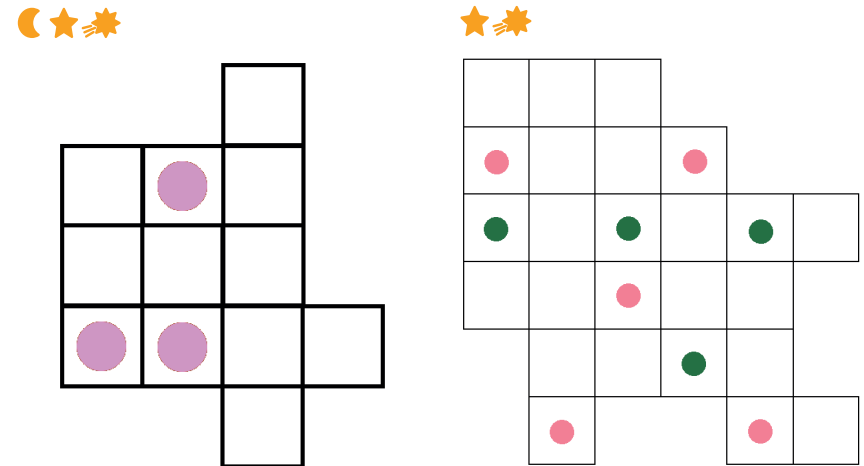
Énigme 5

☾★☄ The red bag weighs :..............................

★☄ An apple weighs : ....

Énigme 6

☾ ★ ☀ Answer for Luna's question : ....

★ ☀ Answer for Célestin's question : ....

☀ Answer for Stella's question : ....

Énigme 7

☾ ★ ☀

🔴 = ... 🟩 = ... 🔵 = ...
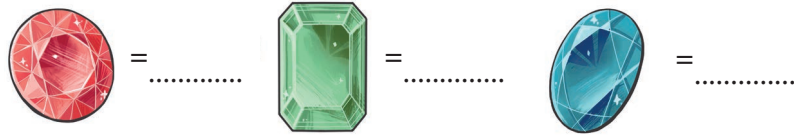
☀ The starting number is : ....

Énigme 8

☾ ★ ☀ Answers for Luna :

Luna	Célestin	Stella

★ ☀ Write the owl names:

☀ Wrtite the numbers of fish :

Luna	Célestin	Stella	Galaxy

Énigme 9

☾ ★ ☀ Luna gives .... candies
and Stella gives .... candies.

★ ☀ Alex will pay ....   Boris will pay ....

Diane will pay ....   Célestin will pay ....

☀ In total, there are .... animals

Énigme 10
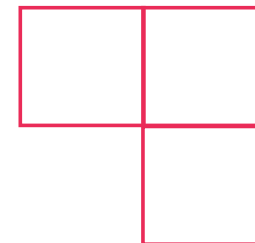
☾ ★ ☀ Answer : ....

★ ☀ Trace the inscription of Galaxy's stamp :
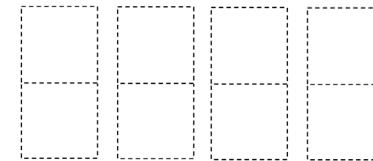
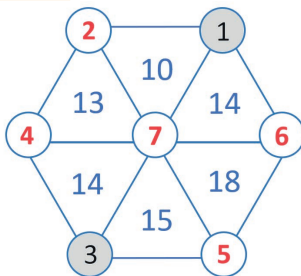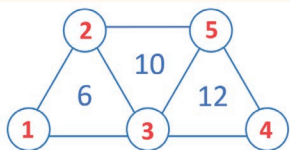☀ Draw the trace obtained by Stella :

LES CORRIGÉS DES ÉNIGMES

Énigme 1

☾★☀ Answer for Luna's necklace : **Red**

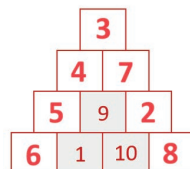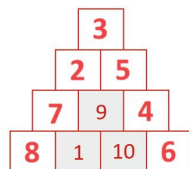★☀ Answer for Célestin's necklace : **Yellow**

☀ Answer for Stella's necklace : **99**

Énigme 2

☾★☀ The side of the red square measures **5 cm**

★☀ The side of the red triangle measures **9 cm**

☀ The edge of the red cube measures **6 cm**

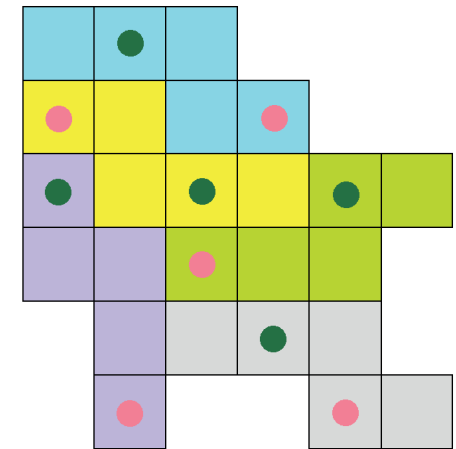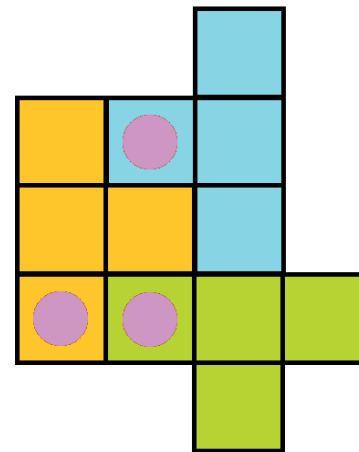## Énigme 3

☾★☀

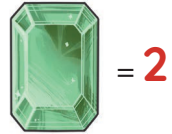
★☀

☀ **2 possible solutions**

Énigme 4

☾★☀

★☀
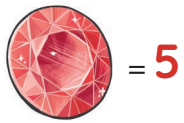

Énigme 5

☾★☀ Le sac rouge pèse : **200 g**

★☀ Une pomme pèse : **150 g.**

Énigme 6

☾ ★ ☀ Answer for Luna's question : **40 cubes**

★ ☀ Answer for Célestin's question : **18 sides**

☀ Answer for Stella's question : **27 faces**

Énigme 7

☾ ★ ☀

 = **5**   = **2**   = **3**

☀ The starting number is **11**

Énigme 8

☾ ★ ☀

Luna	Célestin	Stella
4ᵉ	**3ᵉ**	**1ᵉʳ**

★ ☀

Aly	Moly	Galaxy	Kamy	Samy

☀

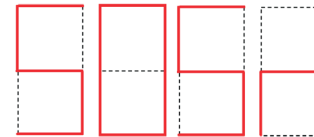| Luna	Célestin	Stella	Galaxy
0	**2**	**3**	**1**

Énigme 9

☾ ★ ☀ Luna gives **5** candies and Stella gives **2** candies.

★ ☀ Alex will pay **20 €**   Boris will pay **4 €**

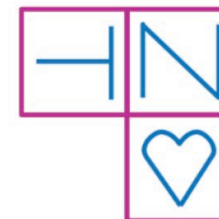Diane will pay **4 €**   Célestin will ay **20 €**

☀ **53** animals.

Énigme 10

☾ ★ ☀ Answer : **S 3 2**

★ ☀ Inscription of Galaxy's stamp :

☀ Trace obtained by Stella :

**This booklet and those of other editions are available in French on the CIJM website**

The proposed riddles
are taken from the
Mathematical and Logical Games
of the Fédération Française
des Jeux Mathématiques,
and from the competitions
Mathématiques sans Frontières.

They have been adapted for the
occasion par Brigitte Bourgasser,
Audrey Candeloro et Marine Ness.

Mathématiques
SANS
Frontières

Fédération Française
des Jeux Mathématiques
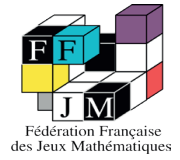
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