brainfinity

COLLABORATIVE PROBLEM SOLVING CHALLENGE

COLLECTION OF DETECTIVES' TASKS

Co-funded by the European Union

PROJECT NR: 2022-1-PT01-KA220-SCH-000086691

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INTRODUCTION

Explore fun and engaging ways to enhance problem-solving, communication, and teamwork skills among your primary school students! Our booklet with 50 detective tasks, has been meticulously crafted by a collaborative team of teachers and experts from Portugal, Bulgaria, Serbia, and Slovenia.

As part of the “Brainfinity Detectives – collaborative problem-solving challenge” project, our diverse team of eight partners from four countries pooled our expertise to compile this resource. We began by tackling the tasks from past national Brainfinity Challenges, deeply analyzing the cognitive processes involved. Through this reflective approach, we embarked on the creation of our own tasks, each partner contributing eight. From these, we’ve carefully selected the top 50 tasks to include in this booklet.

INTRODUCTION

This curated collection is designed for easy integration into your classroom activities, regardless of your teaching location. To broaden accessibility, we've translated the booklet into six languages: English, Bulgarian, Serbian, Slovenian, and Portuguese.

The tasks are categorized into three engaging groups:

- **Logic Puzzles**
- **Detective Tasks**
- **Deciphering Codes**

To simplify your selection, we've organized these tasks into six levels of difficulty. We encourage you to challenge yourself and your students by starting with the simpler tasks and progressing to the more complex ones. Solutions are provided at the end of the booklet, but we recommend trying to solve the tasks on your own before peeking!
Dive in, enjoy the interactive learning experience with your students, and feel free to share your stories and successes with us at **brainfinitydetectives@gmail.com**

Warm regards,
The Project team

brainfinity
COLLABORATIVE PROBLEM SOLVING CHALLENGE

LOGIC PUZZLES

DIFFICULTY LEVEL 1

LOGIC PUZZLE 1: Sports and Teams

In a busy week, four teams from your school prepare for their favorite sports activities. Each team has its own training session on a specific day, and each sporting activity is practiced at a different time of the week. Use the clues below to help you complete the schedule.
Now, using these clues, complete the schedule with the four corresponding teams (A, B, C and D), sports activities (Basketball, Football, Handball and Hockey) and days of the week (Monday, Tuesday, Wednesday and Thursday). Good luck!

CLUES

Team A has Hockey practice, but not on Wednesday.
Basketball practice takes place on Monday, but is not carried out by Team B.
Team B has football training, which is not on Tuesday.
Handball practice is not on Wednesday.
Team D does not play on Tuesday.
Team C does not practice Basketball nor does it practice on Tuesday

DIFFICULTY LEVEL 1

LOGIC PUZZLE 2: The Mystery of the Music Students

Four friends, Vasco, Zara, Constança and Zack, have music lessons every week. Each of them studies a different instrument: piano, violin, drums, and harp. In addition, each one dedicates a different amount of time to their musical practices, varying between 2, 3, 4 and 5 hours per week.

Let's see if you can figure out who's who and how much time they devote to their favorite instrument.

Now, using these clues, can you figure out who studies each instrument and how long each of them studies? Good luck!

CLUES

1. The student who studies piano is not Vasco, nor the one who studies for 2 hours a week.
2. Zara studies less time than Constança, but more than the student who plays the harp.
3. The student who plays the violin is not Zack or the one who studies for 3 hours a week.
4. The student who studies for 5 hours a week plays the drums.
5. Constança doesn't study for 4 hours a week.
6. The student who studies violin is not the one who studies for 4 hours a week.

DIFFICULTY LEVEL 2

LOGIC PUZZLE 3: Little Mathematicians

Six students are playing in the schoolyard. They are from 6 A; 6B; and 6 V classes. Their names are Boris, Vanyo, Nickolay, Petyo, Rosen, and Spas. They all took part in the Mathematical Olympiad and won the first six places.

CLUES

1. Boris is neither 1st nor 4th. He isn't from the 6 B class.
2. Vanyo is not 4th at the Olympiad and he and Boris sit on the same desk.
3. Petyo got the 2nd place at the Olympiad. He and Nickolay have different class teachers.
4. Nickolay is from the 6 A class. He is neither 5th nor 6th at the Olympiad. He doesn't know Vanyo.
5. Petyo and the one who got first place at the Olympiad are from different classes.
6. Nickolay and Rosen are from different classes. One of them is 4th at the Olympiad.
7. Rosen and Spas are not from the 6 V class. One of them is fifth at the Olympiad.
8. Spas and Nickolay have the same class teacher and have two consecutive places at the Olympiad.
9. Boris got one of the last 3 places.

DIFFICULTY LEVEL 2

LOGIC PUZZLE 4: The Zoo

Some new animals are brought to the zoo.There are animals from Cameroon, India, Kenya, Nigeria and Uganda. Unfortunately all the documents are messed up.
Will you help me find out the country each animal comes from? Please help me accommodate appropriately each of them according to their weight?

CLUES

1. KoKo is from Uganda.
2. Zara is 100 kg less than the animal from India and it is not from Kenya.
3. The tiger that is 290 kg is either Machali or it is from Nigeria.
4. Fatu is heavier than the animal from India.
5. The heaviest animal is from Cameroon and it is not Fatu.
6. The rhino is either from Kenya or it is Ava.

DIFFICULTY LEVEL 2

LOGIC PUZZLE 5: Graduation Trip

On an exciting journey of finalists, high school students in Slovakia from classes 12/1, 12/2, 12/3 and 12/4, embarked on an unforgettable trip, exploring distant destinations that were 707km, 688km, 483km, and 437km away from their location. In this unique adventure, the chosen means of transportation were bus, train, car, and plane. Each transportation option provided a unique experience, filled with memorable moments. In addition to the distances traveled and the means of transportation chosen, each student had a travel cost, depending on the destination, of €500, €450, €350, and €300. Can you figure out which class traveled the most km, which means of transportation they used, and how much each student spent?

CLUES

- The class that travelled by plane covered more kilometres than the class that spent 300€.
- Class 12/1 and the class that spent 350€ were less satisfied with their trip. One of them traveled 688km and the other traveled by bus.

Link to the designed task

DIFFICULTY LEVEL 2

- The class that spent 450€ and the class that travelled by train are different. One of them is Class 12/2.
- The class that travelled by train covered 483km.
- The class that covered 437km spent 450€.
- The class that spent 300€ is either Class 12/3 or Class 12/1.
- Class 12/2 and the class that spent 500€ are different and one of them traveled by plane.

CLASS	COST	DISTANCE	TRANSPORT
12/1			
12/2			
12/3			
12/4			

DIFFICULTY LEVEL 3

LOGIC PUZZLE 6: Taylor Swift's concert in Brainville

Welcome to the world of concert scheduling, where the harmony of logistics meets the rhythm of entertainment! You are tasked with scheduling the opening acts for Taylor Swift's upcoming concert tour in Brainville. Taylor Swift has concerts scheduled on Thursday, Friday, Saturday and Sunday. Each night there are two opening acts: one at 17.00 and the other at 19.00. There are four different opening acts available, each with their own unique requirements and constraints. Your goal is to create a schedule that maximizes audience enjoyment while adhering to the rules and preferences outlined below.

CLUES

- Pop band can perform only on Thursday and Saturday.
- Hip-Hop artist can perform any day except Friday.
- Country music duo can't perform on Thursday.
- Rock band can perform on Friday or Saturday.
- There must be two opening acts each evening.
- No artist can perform two days in a row.
- Rock band and Hip-Hop can't perform on the same day.

DIFFICULTY LEVEL 2

LOGIC PUZZLE 7: Class schedule

Welcome to a week full of learning and fun for four classes, 7.º1, 7.º2, 7.º3 e 7.º4!
Let's add a few clues to make the challenge even more interesting. With these clues, you should be able to fill the calendar by assigning each activity (Music, English, Physical Education and Arts) to each class (7.º1, 7.º2, 7.º3 e 7.º4) on different days of the week. Good luck!

CLUES

- The 7.º 1 has English class on Tuesday and does not practice Physical Education on Wednesday. They have Art class the day before Physical Education. The Music class is not on Thursday and is on the same day as the 7.º 4. The 7.º1 has a day off from activities on the first day of the week.
- When the 7.º 1 has an English class, the 7.º 2 does not.

DIFFICULTY LEVEL 2

- The 7.º 2 has an Arts class on Monday and no Music or Physical Education class on Wednesday. They have English class the day before the Music class. The 7.º 2 rests just before the weekend.
- The 7.º 3 practices Physical Education on Thursday, does not have English class on Monday and has Music class the day before English. Music class is not on Tuesday. The 7.º 3 has a break on Wednesday.
- When the 7.º 3 has a music class, the 7.º 4 does not.
- The 7.º 4 has a Music class on Wednesday and does not practice Physical Education on Monday. They have English class the day before Physical Education.
- When the 7.º 3 has an art class, the 7.º 4 also has it.

DIFFICULTY LEVEL 3

LOGIC PUZZLE 8: Teenage Life

Maria, Lily, Zhana, and Katya are friends and play different musical instruments - the flute, piano, guitar, and violin. They also study different foreign languages. Each girl plays only one musical instrument and studies only one foreign language. Each of them has a boyfriend - Hristo (Hr), Radi (Ra), Mitko (Mi), and Petko (Pe).

CLUES

- The girl who plays the guitar studies Spanish. She is Petko's girlfriend.
- Lily and Maria don't play the violin or the flute. They don't study English and none of them is Hristo's girlfriend.
- The girl who studies German does not play the flute.
- Zhana studies French. She doesn't play the violin and doesn't know Petko.
- Katya and Mitko's girlfriend often visit Petko's girlfriend.
- Katya isn't Mitko's girlfriend.
- Maria and Katya play string instruments.
- Who plays which musical instrument?
- What foreign language does each of the girls study?
- Who is the boyfriend of each of the girls?

LOGIC PUZZLE 9: Book Club

At the school's book club, Maria, Michael, Teo, and Alex dive into the pages of their favorite authors, such as Hans Christian Andersen, William Shakespeare, J.K. Rowling, and Antoine de Saint-Exupéry. Each month, the reading competition culminates in the awarding of a prize to the reader who read the most books. On last month's podium, we witnessed remarkable achievements, with readings totaling 7 books, 5 books, 4 books, and 3 books. However, behind this fascinating literary journey, an intriguing challenge arises: to explore which genre each reader read last month, which turned out to be fiction, tale, poetry, and novel.

Link to the designed task

DIFFICULTY LEVEL 3

CLUES

- The reader who read a novel last month read more books than the one who likes Hans Christian Andersen.
- Alex and the reader who is a fan of Antoine de Saint-Exupéry were the most satisfied with the number of books read. One of them read five books and the other read a tale.
- The J.K. Rowling fan reader and the one who read fiction last month are different people. One of them is Michael.
- The reader who read fiction read 4 books last month.
- The reader who reads 3 books is a fan of J.K. Rowling.
- The reader who is a fan of Hans Christian Andersen is Maria or Alex.
- Michael and the reader who is a fan of William Shakespeare are different people and one of them read a novel last month.

DIFFICULTY LEVEL 4

LOGIC PUZZLE 10: In a new building

John and Nicholas are students, roommates, and they moved into a small building with only six apartments. Three apartments are on the 1st floor, and three on the 2nd floor. The building is poorly maintained and in bad condition, but the rent is low, and they are allowed to have a pet, a dog named Rex.

As newcomers to the building, they are still trying to figure out who lives where and what everyone does. In the entrance hallway of the building, there are mailboxes, but the numbers and names are erased and only understandable to the owners and the mailman! Recently, Nicholas has been trying to figure out who is making a certain type of noise because everything can be heard - in addition to the dog barking, there are arguments, the sound of water in the pipes, loud TV, and a very loud cough (though this is very, very rare) and parties.

To make it easier to remember them, John and Nicholas gave everyone nicknames:

Brothers, Curly, Mustache, Sneaky, Tall

The nicknames have nothing to do with their professions (which are: retiree, athlete, doctor, musician, steward).

Roommates live in apartment number 2 on the 1st floor.

Link to the designed task

DIFFICULTY LEVEL 4

2ND FLOOR	NICKNAME			
	PROFESSION			
	NOISE			
	APARTMENT NR	4	5	6
1ST FLOOR	NICKNAME			
	PROFESSION			
	NOISE			
	APARTMENT NR	1	2	3

CLUES

- On the second floor, the Brothers are moving up. Tall and Curly.
- The retiree is deaf.
- The dog barking is caused by noise from neighboring apartments - the sound of water or loud TV.
- From apartment 4, there is an argument heard.
- Parties are thrown on the second floor.
- The steward lives between the Brothers and the Athlete.
- The Brothers are not retirees.
- Sneaky lives below the Athlete.
- The steward does not throw parties; he is very rarely in the apartment.
- Mustache does not have a TV.
- The Athlete is buzzed "down to the skin."
- The doctor lives on the 1st floor.

DIFFICULTY LEVEL 4

LOGIC PUZZLE 11: School Library

Milica, Luka, and Anja have the task of arranging books on the shelves in the school library according to the grade level - fourth, fifth, sixth, seventh, or eighth. The trouble is that these five shelves have no labels to indicate which is for which grade, and an additional headache comes from five damaged books - some with obscured titles, some without author names.

However, the three of them know all the book titles and the authors' names - now they just need to somehow connect them and place them in the appropriate shelf.

The authors are: Taylor Tate, Aristotel Eleftheriu, Helena Stefanaki, Nika Papadopulu, Jane Galagher

The titles of the works are: SF for beginners, Letters from a Pirates, Tailor's Tale, Stories from a pocket, Mars Attacks!

Fortunately, they reliably knew that Helena Stefanaki wrote Stories from a pocket.

SHELF NUMBER	1	2	3	4	5
GRADE					
AUTHOR					
TITLE					

DIFFICULTY LEVEL 4

CLUES

- The last of the five shelves is the only one marked, and it contains books for the 8th grade.
- Stories from a pocket is read in the 4th grade.
- In the 8th grade, Mars Attacks! is not read.
- Aristotel Eleftheriu's works are read in the 5th grade.
- Books for the eighth and seventh grades are separated by one shelf.
- In the 4th, 5th, and 7th grades, authors of Greek origin are read.
- Books for the fifth and sixth grades are on adjacent shelves.
- The author read in the 6th grade included his name in the title of his work.
- Authors whose works are read in the 7th and 8th grades write science fiction.

Link to the designed task

DIFFICULTY LEVEL 4

LOGIC PUZZLE 12: European Study Visit

In 2023, the classes of 7A, 7B, 7C, and 7D from Gondomar Secondary School in Portugal embarked on an exciting study visit to different cities in Europe: Berlin, Stockholm, Paris, and Prague. During the trip, they explored various cultures, historical monuments, and stunning landscapes. They visited a tower, a statue, a wall, and a cathedral, all historical monuments of the cities they passed through. When they returned, school classmates wanted to find out which city they visited, which monuments they saw, as well as in which month of the holidays they had traveled, whether in June, July, August, or September.

CLUES

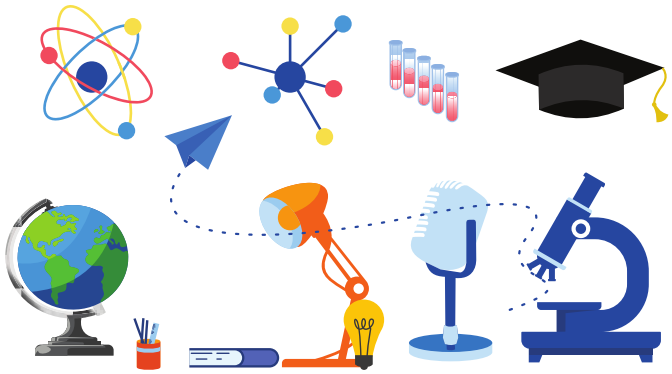
- The class that visited the Tower started their trip later than the class that visited Stockholm.
- 7A class and the class that visited Paris were more satisfied with their choice. One of them traveled in August and the other visited the Cathedral.
- The class that visited Prague and the class that visited the statue are different. One of them is 7B.
- The class that visited the statue traveled in July.
- The class that traveled in June visited Prague.
- The class that went to Stockholm is either 7C or 7A.
- 7B and the class that went to Berlin are different and one of them visited the Tower.

Link to the designed task

DIFFICULTY LEVEL 4

LOGIC PUZZLE 13: Science fair

Five students—Alice, Bob, Cindy, Dave, and Emily—are participating in a science fair. Each student chose a different project to present. Use the clues below to identify each student, their grade (5th, 6th, 7th, 8th, or 9th), and their science fair project (robotics, chemistry, astronomy, biology, or physics).



CLUES

- Dave is not in 6th grade.
- Bob presents his chemistry project.
- A 6th grade student presents a biology project.
- The student presenting the robotics assignment is in the 7th grade.
- Cindy is in 9th grade.
- Alice is not in 8th grade.
- Cindy does not represent physics projects.
- Emily is in a lower grade than Alice.

DIFFICULTY LEVEL 4

LOGIC PUZZLE 14: Ideal seating arrangement in the classroom

In the class, there are 20 students who need to be arranged to sit in a way that enhances productivity during the lesson. The seating arrangement rules are as follows:

CLUES

- Desks can accommodate a maximum of two students, but at least one student must be seated.
- Visually impaired and shorter students must sit in the front rows.
- Taller students should sit in the last or second-to-last row, with an exception if they are both talkative and lower-performing students.
- Copycats must not be seated next to high achievers.
- Talkative students must not be seated next to each other.
- Couples in love must sit together.
- Students with average knowledge should sit with students of average or lower knowledge (or sit alone, either one).
- Students in conflict should not be paired.

Link to the designed task

DIFFICULTY LEVEL 4

Types of students:

- Visually impaired: Lidija, Novak
- High achievers: Aleks, Lidija, Novak, Vuk, Elena
- Short: Aleks, Novak
- Tall: Stefan, Saša, Vuk, Luka
- Couple in love: Jovan and Sandra
- Very good students: Mirela, Branko, Luka, Nina, Markus
- Students with average knowledge: Nikola, Ana, Jovan, Sandra, Suzana, Aleksandar
- Talkative students: Aleksandar, Saša, Stefan, Suzana
- Lower-performing students: Saša, Sara, Julija
- Copycats: Saša, Aleksandar, Suzana, Julija
- Students in conflict: Suzana and Elena, Nikola and Aleksandar, Suzana and Julija

LOGIC PUZZLE 15: The Class Field Trip

Mrs. Thompson's science class is going on a field trip to learn about different ecosystems. The class will visit five different locations: a forest, a lake, a meadow, a cave, and a river. Students – Lucas, Sophia, Olivia, Ethan, and Ava – will each give a presentation on a specific plant or animal: an oak tree, a trout, a daisy, a bat, and a firefly. Use the clues to determine which student is presenting at each location and what organism they will be discussing.

DIFFICULTY LEVEL 5

CLUES

- The student presenting at the lake is either Sophia or the one discussing the fish (trout).
- Ethan is giving his presentation at either the cave or the river.
- The student presenting on the wildflower (daisy) is either Olivia or the one at the meadow.
- The presentation on the oak tree is happening at either the forest or the location where Lucas is presenting.
- Ava is giving her presentation on either the butterfly or at the location after the one where the presentation on the bat is happening.
- The presentation at the cave is either about the bat or is being given by the student who is presenting immediately before Sophia.
- The student presenting at the meadow is either Ethan or the one presenting immediately after the student discussing the trout.
- The presentation on the firefly is being given at either the river or the location immediately before the one where the presentation on the oak tree is happening.
- The presentation on the daisy is happening at a location before the one where Ethan is speaking.
- Ava's presentation is not at the forest.
- The student discussing the firefly is presenting at a location immediately after the student discussing the oak tree.

Link to the designed task

DIFFICULTY LEVEL 5

LOGIC PUZZLE 16: Women's Ski Jumping Finals

The Women's World cup finals in Ski jumping was held in Planica, Slovenia this weekend. Among the competitors battling for first place were Iko, Nika, Katharina, Alexandra, and Sara, representing their respective countries (Slovenia, Austria, Norway, Japan and Germany) with pride.

They jumped following distances: 110,8 m, 105,6 m, 90,1 m, 86,4 m, 96,3 m and scored these points: 110, 103, 96, 89 and 82.

Using only the clues below, match each jumper to her total number of points, and determine the length of her longest jump and her home country.

DIFFICULTY LEVEL 5

CLUES

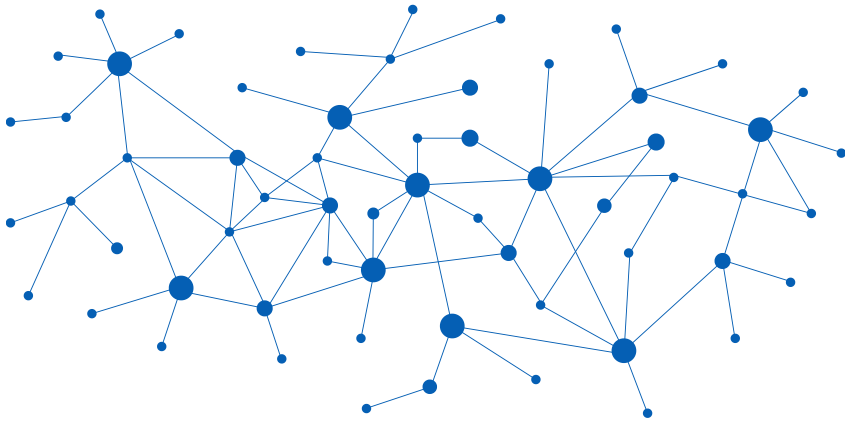
- Of Alexandra and the person who scored 82 points, one jumped 90,1 m and the other jumped 86,4 m.
- Katharina scored 14 fewer points than Nika.
- Alexandra was either the jumper who jumped 86,4 m or from Norway.
- The skier from Japan scored 7 fewer points than the contestant from Slovenia.
- The jumper who scored 103 points was either the contestant that jumped 110,8 m or Sara.
- Katharina scored 14 fewer points than the skier who jumped 105,6 m.
- Sara didn’t score exactly 103 points.
- The skier who scored 103 points was from Japan.
- The skier from Germany was either the skier who jumped 96,3 m or the person who scored 82 points.
- The skier who jumped 96,3 m scored 21 more points than Sara.

DIFFICULTY LEVEL 5

LOGIC PUZZLE 17: Artificial Intelligence

A standardised test has recently been developed that is now used to determine the general effectiveness of any form of A.I. (Artificial Intelligence). A series of different A.I. systems, each named after a different person in Ancient Greek history, has recently been scored according to this test. Using only the clues below, match each A.I. system to its test score and determine the institution that submitted it and the head of each team that built it.

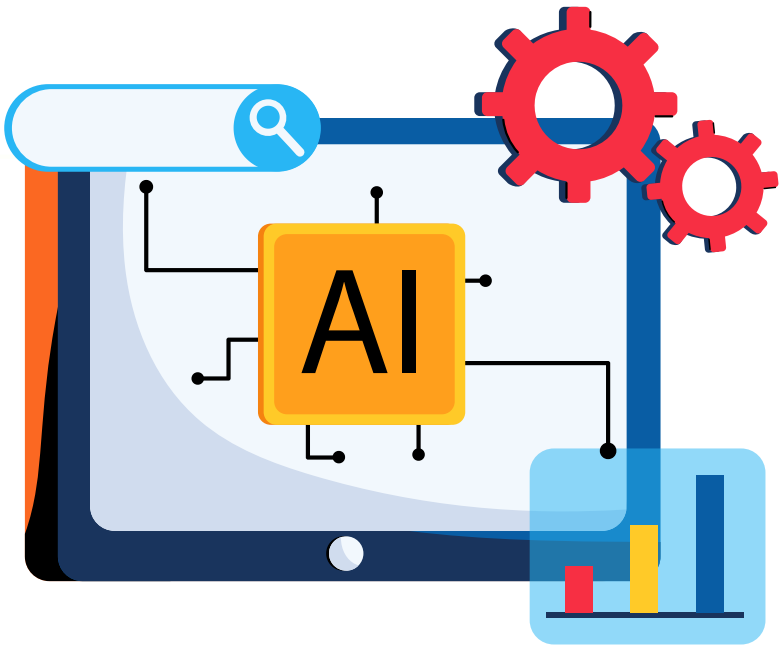
The systems evaluated are named Proclus, Pythagoras, Zeno, Archimedes, and Thales. Each AI system was scored on a scale to measure effectiveness, with scores provided as percentages - 76%, 55%, 83%, 62% or 69%. The educational institutions have participated in this testing are UCLA, Cambridge,CIT, MIT, and SFIT. The leaders of each team are identified by their last names— Coulson, Dower, Odle, Abbratozzato and Whitlaw.



DIFFICULTY LEVEL 5

CLUES

- The system from Cambridge finished with a score that was 7 percent lower than that of the system built by Dr. Odle's team.
- The five systems were the A.I. built by Dr. Coulson's team, Thales, Proclus, the system that scored 62% and the A.I. from UCLA.
- The system from SFIT finished with a score that was 7 percent lower than that of the A.I. from UCLA.
- The system built by Dr. Dower's team finished with a score that was 7 percent lower than that of Archimedes.
- The A.I. built by Dr. Abbratozzato's team was either the A.I. from Cambridge or the system that scored 62%.
- Of Zeno and Thales, one scored 83% and the other was built by Dr. Dower's team.
- The A.I. from CIT finished with a score that was 21 percent higher than that of Proclus.



DIFFICULTY LEVEL 5

LOGIC PUZZLE 18: Condors' release

The California condor is one of the world's largest and most endangered birds. Several conservation programs have been raising and releasing condors into the wild in an effort to boost their numbers.

Keep in mind the following information: Release locations — Bingham Canyon, Cordell Mesa, Folsom Bend, Ralton Pass, and Alkali Ridge. Names of the released condors are Spike, Sunshine, Charlie, Merlin, and Buddy. All condors have different wingspans, from 102 inches to 118 inches, with a difference of exactly 4 inches between the wingspans of condors. The ages of the condors are 5, 9, 10, 11 or 12 years.

Using only the clues that follow, determine the age and wingspan of each of the most recently released condors and determine the location in which each was set free.

DIFFICULTY LEVEL 5

CLUES

- Neither the condor with a wingspan of 102 inches nor the bird with a wingspan of 118 inches is Spike.
- The bird with a wingspan of 106 inches is either the bird released at Cordell Mesa or Merlin.
- Spike has a wingspan 4 inches longer than the 9-year-old condor.
- The bird with a wingspan of 102 inches wasn't released at Bingham Canyon.
- The bird released at Bingham Canyon isn't 10 years old.
- Neither the bird with a wingspan of 106 inches nor the condor with a wingspan of 118 inches is the 5-year-old condor.
- Of the bird with a wingspan of 110 inches and the 9-year-old condor, one was released at Bingham Canyon and the other was Charlie.
- The condor released at Alkali Ridge isn't 9 years old.
- Merlin has a wingspan of 114 inches.
- Of the bird with a wingspan of 106 inches and Buddy, one was released at Ralton Pass and the other is 11 years old.
- The 5-year-old bird is either the bird with a wingspan of 114 inches or Buddy.

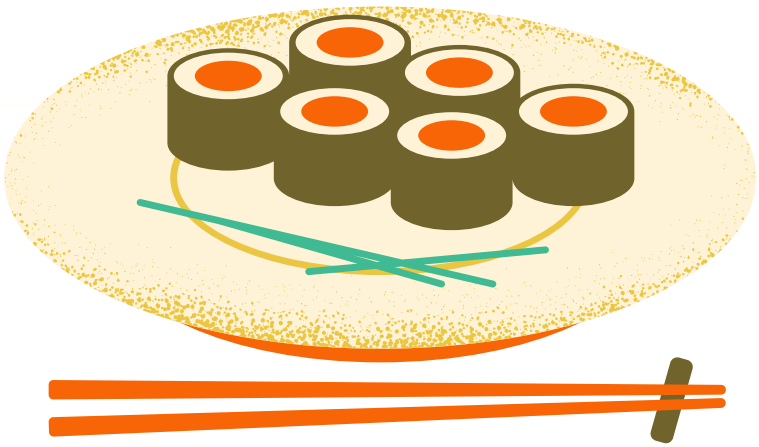
DIFFICULTY LEVEL 5

LOGIC PUZZLE 19: The scrambled sushi

Ben works at Nemo Sushi, and he needs to figure out the total bill for a number of different customers, each of whom ordered two different types of sushi rolls.

Customers names: Yvette, Gilbert, Ted, Allan and Fred.
1st type of rolls - california, hawaiian, dragon, alaskan, firecracker
2nd type of rolls - yellowtail, spicy tuna, spider,, rainbow and volcano
The prices are staring from $9,50 to $17.50. Prices for each order have $2 difference.

Using only the clues below, match each order (two types of rolls) to its price, and determine the name of each customer.



DIFFICULTY LEVEL 5

CLUES

- The customer who ordered the spider roll paid 2 dollars less than the customer who ordered the volcano roll.
- The client who ordered the yellowtail roll paid 2 dollars less than the person who ordered the dragon roll.
- Of the client who ordered the spicy tuna roll and the client who ordered the firecracker roll, one paid $17.50 and the other is Allan.
- Ted paid 2 dollars less than the customer who ordered the firecracker roll.
- The customer who ordered rainbow roll did not order the dragon roll, and paid exactly $2 more than the person who ordered the california roll.
- The client who ordered the alaskan roll didn't order the volcano roll.
- Fred ordered the spicy tuna roll.
- The client who ordered the hawaiian roll paid 6 dollars more than Gilbert.
- Ted paid 4 dollars less than Fred.
- Gilbert didn’t order rainbow rolls and payed $2 more than Yvette
- The client who paid $13.50 ordered the volcano roll.

DIFFICULTY LEVEL 5

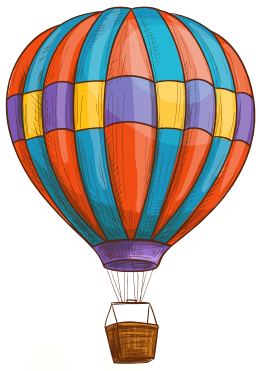
LOGIC PUZZLE 20: The Great Balloon Race

It's the annual Brainville Balloon Race and excitement is in the air! Five hot air balloons are set to take flight, each with a unique color and sponsored by a different local business. The pilots have varying levels of experience, from rookie to veteran. Spectators have gathered to cheer on their favorite balloons as they ascend into the sky. The balloons will fly to different destinations, dropping off special packages along the way. Use the clues below to determine the color of each balloon, the business sponsor, the pilot's experience level, the balloon's destination, and the distance traveled.

DIFFICULTY LEVEL 5

CLUES

- The green balloon is sponsored by either the toy store or the bakery.
- The balloon traveling to Millfield is either yellow or orange.
- The balloon sponsored by the florist is piloted by the rookie.
- The veteran pilot is flying the purple balloon.
- The balloon traveling 120 km is the one sponsored by the pet shop. (Modified for clarity)
- The balloon traveling to Brightville is either blue or sponsored by the toy store.
- The pilot with 3 years of experience is flying the balloon sponsored by the cafe.
- The balloon going to Sunnyvale is either piloted by the pilot with 5 years of experience or is the one traveling 100 km.
- The orange balloon is traveling 20 km farther than the green balloon.
- The red balloon is traveling 50 km less than the balloon piloted by the pilot with 10 years of experience.
- The pilot flying to Hilltop has more experience than the pilot traveling to Riverton.
- The pilot flying to Riverton is not flying the orange balloon.
- The distance between Brightville and Hilltop is 20 km.



Link to the designed task

DIFFICULTY LEVEL 5

LOGIC PUZZLE 21: The School Carnival

Brainville Middle School is hosting a carnival to raise money for new playground equipment. The carnival features five different game booths, each run by a different student volunteer from the 6th, 7th, or 8th grade: Olivia, Noah, Emma, Ava, and Liam. The booths offer prizes like stuffed animals, gift cards, candy, toys, and school supplies. Each booth charges a different number of tickets to play. Use the clues to match each student to their grade, booth, prize, and ticket cost.

CLUES

- The booth charging 3 tickets is either the Ring Toss or the one with the 7th grader.
- Emma is either running the Balloon Pop booth or the one with candy prizes.
- The 6th grader is running the booth that charges 2 tickets.
- The Basket Shoot booth is giving away either gift cards or school supplies.

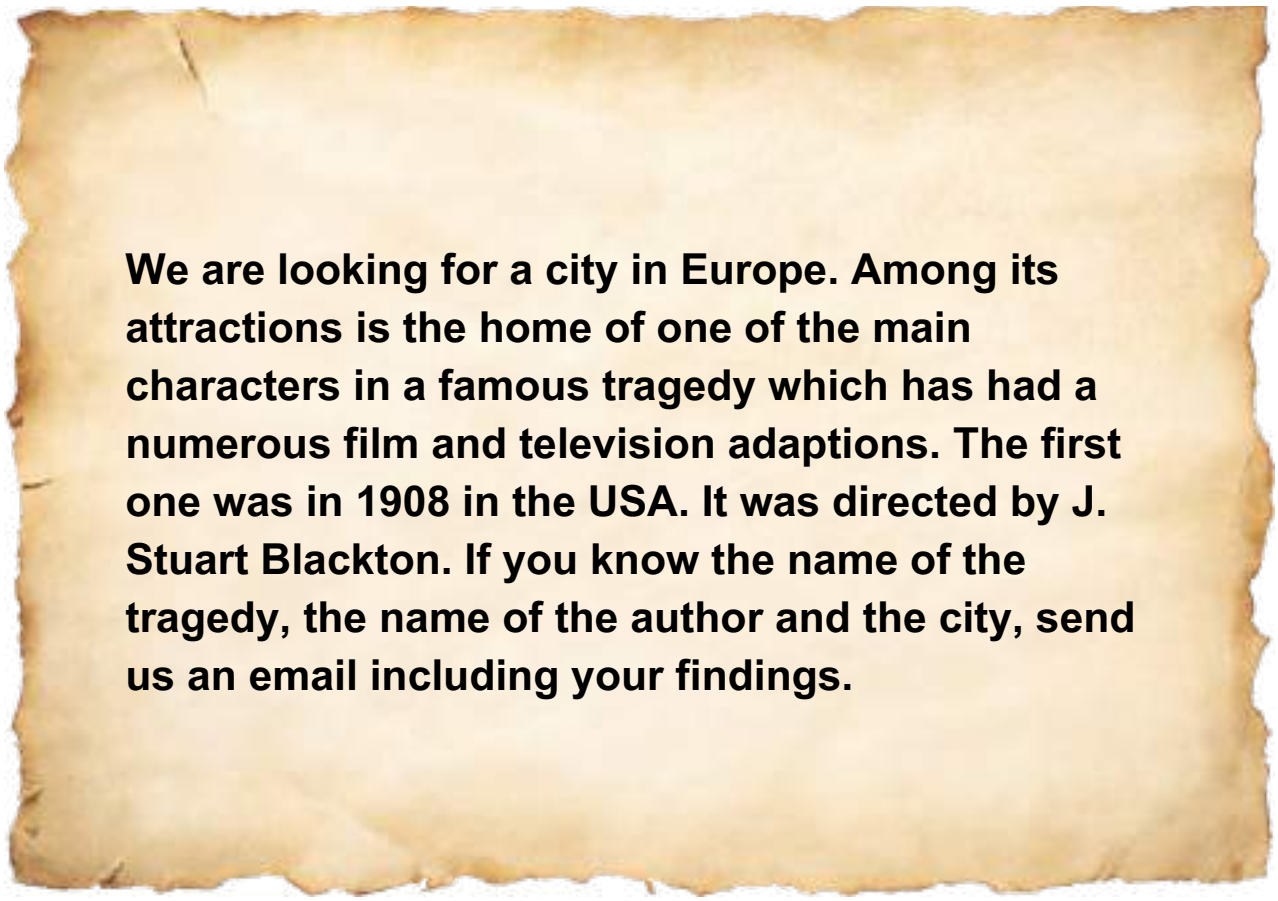
Link to the designed task

brainfinity
COLLABORATIVE PROBLEM SOLVING CHALLENGE

DETECTIVES' PROBLEMS

SINGLE SOLUTION; DIFFICULTY LEVEL 1

DETECTIVE'S PROBLEM 1: Literature



We are looking for a city in Europe. Among its attractions is the home of one of the main characters in a famous tragedy which has had a numerous film and television adaptions. The first one was in 1908 in the USA. It was directed by J. Stuart Blackton. If you know the name of the tragedy, the name of the author and the city, send us an email including your findings.

Link to the designed task

SINGLE SOLUTION; DIFFICULTY LEVEL 1

DETECTIVE'S PROBLEM 2: Programming Language

The city of Montreux, which is located on the shore of the lake, is near a castle. It used to be a prison. A famous lord wrote a poem about one of the prisoners in the castle. One of the programming language is named after the poet's daughter, who is regarded to be the first programmer. If you have figured out the name of his daughter, send us your notes and some pictures.

Link to the designed task

SINGLE SOLUTION; DIFFICULTY LEVEL 1

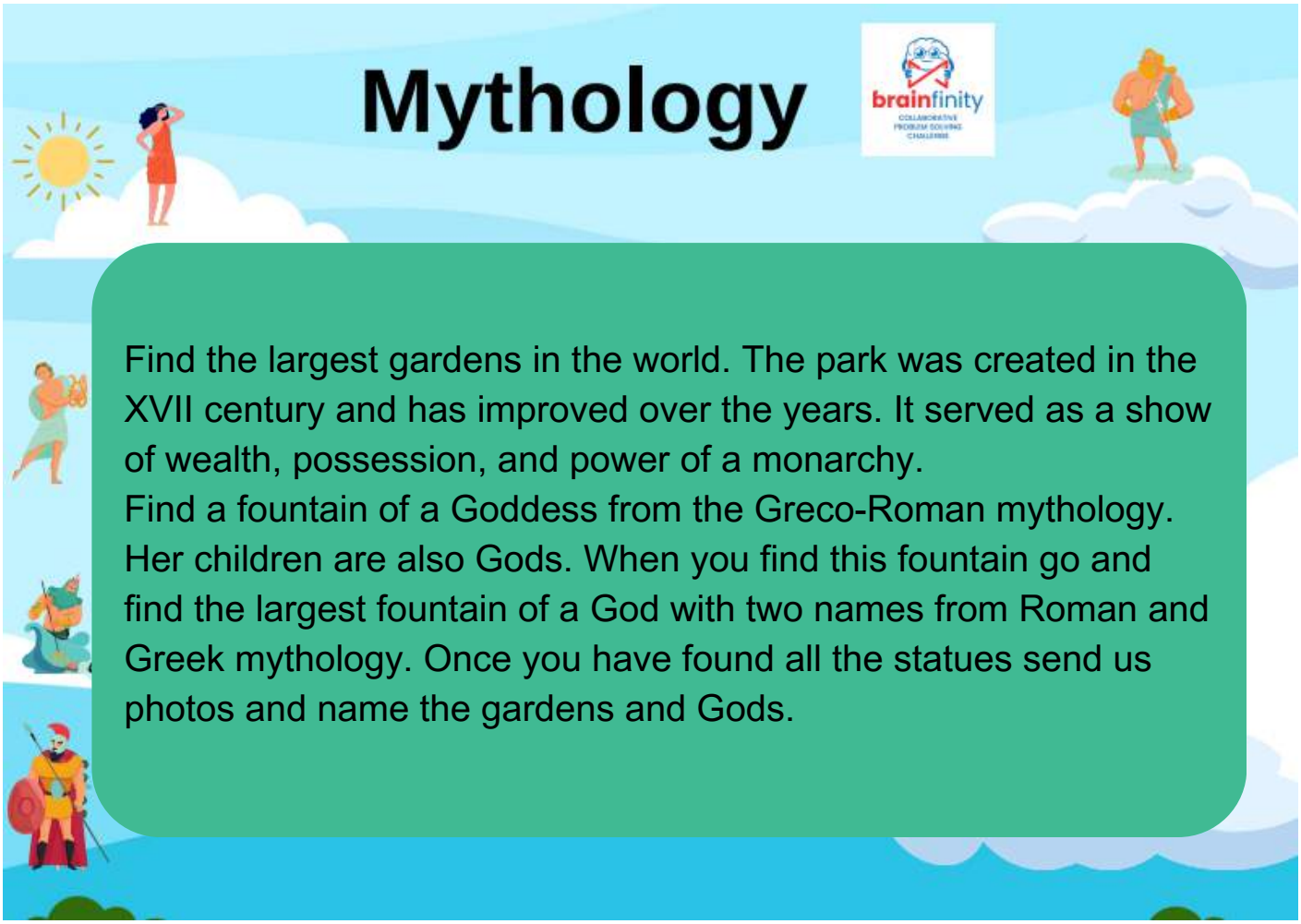
DETECTIVE'S PROBLEM 3: Which movie am I from?

A character from a very famous movie wants us to save her and sent us the following message: "I am usually always accompanied by two boys and I am fearless. Right now, I am having classes on the third floor of the Clock Tower. Unfortunately, this specific class is proving to be quite boring as we are spending our time reading tea leaves, and all I wish for right now is to escape from here! Can someone save me?"

Can you figure out who this character is and in which movie she appears?

SINGLE SOLUTION; DIFFICULTY LEVEL 2

DETECTIVE'S PROBLEM 4: Mythology



Link to the designed task

SINGLE SOLUTION; DIFFICULTY LEVEL 2

DETECTIVE'S PROBLEM 5: The Case of the Melodic Disappearance: Who Am I?

On a glamorous night in the city of Vegas, a renowned artist mysteriously disappeared without a trace. As a brilliant detective, you are summoned to unravel this intriguing mystery.

The only available clue is a mysterious letter left by the missing person.

Dear detective,

I disappeared in the height of fame, among melodies and chords. I see my life as a song, with verses that resonate around the world. I was born at the end of December, when winter and the festive spirit intertwine. One of my names suggests a rapid journey.

My youth was filled with romantic tales, and like a puzzle, my experiences turned into timeless successes. I was the muse of public narrative and the epicenter of celebrity gossip.

In the search for love, I travelled along long roads and faced challenges fearlessly. Along the way, I collected memories and described emotions in red.

SINGLE SOLUTION; DIFFICULTY LEVEL 1

My personal life has often been a public spectacle, with the enigma of love frequently intertwined in the lyrics of my songs. I have been called the 'Queen of Snakes' and even had disagreements on stage.

My film career was a new chapter, acting in a film adaptation of a series of young adult novels. In one of these roles, I danced under the sparkling lights of a big city.

If you look back, you will find a trail of albums that tell my story. Even though some have tried to erase my presence, my music resonates eternally.

Detective, will you be able to unravel the mystery of my identity by deciphering these clues and subtexts?

Good luck with your investigation!

SINGLE SOLUTION; DIFFICULTY LEVEL 3

DETECTIVE'S PROBLEM 6: Snack

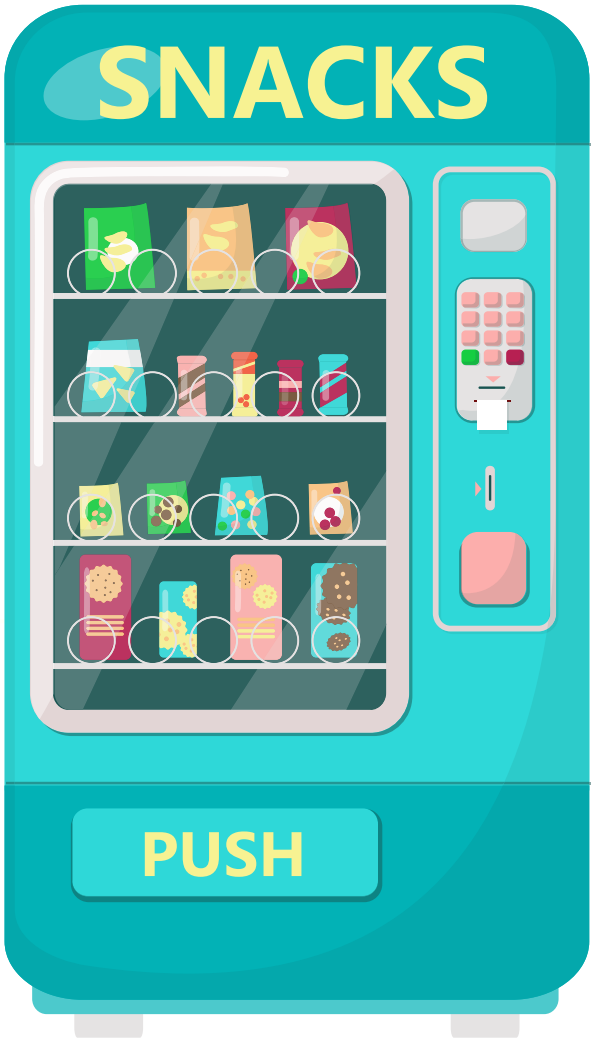
7th grade in Brainville School is learning about different snacks. They found a lot of interesting facts, so they decided to prepare a Brainfinity detective problem. Can you solve it and name the snack they're looking for?

In the bustling world of agriculture, there exists a scientist whose groundbreaking work has not only sustained the snack industry but has also become synonymous with a delectable treat enjoyed by millions worldwide. This individual shares a name with one of the most influential inventors of modern times, known for revolutionizing the way we traverse the globe, and fictional spaceship from American SCI-FI TV series, with the same title. Born in a northamerican city that shares its name with the country where the majestic River January flows, our scientist's contributions are celebrated far and wide.
Among the accolades bestowed upon him is a magnificent statue unveiled at an annual festival, an event named after the very snack we seek. This snack, beloved for its versatility, can tantalize taste buds with both its salty and sweet renditions. Its allure transcends boundaries, captivating even the most discerning palates, including those of esteemed actors and actresses who graciously accept it in recognition of their artistic endeavors. So intertwined is this snack with the world of movies that one actor, in a nod to his most iconic role, accepted it while soaring through the skies in a plane.

SINGLE SOLUTION; DIFFICULTY LEVEL 3

As we embark on our quest to uncover the identity of this delightful snack, our journey is guided by a clue: a statue depicting a scientist adorned with wavy hair, a bow tie, suspenders, and glasses.

Now, dear sleuths, if you seek to uncover the name of this beloved snack, follow the clues laid out before you. Seek out the city where the statue of this scientist stands tall, and therein lies the answer to your savory quest.



SINGLE SOLUTION; DIFFICULTY LEVEL 3

DETECTIVE'S PROBLEM 7: Unraveling the mysteries of a Brilliant Mind! Who am I?

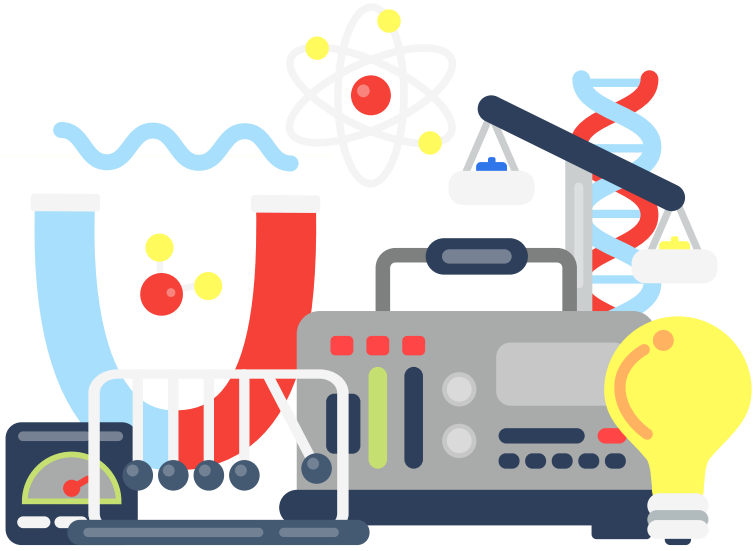
For centuries, the chronicles of history have been adorned by figures whose contributions to the world echo through the ages. In this intellectual challenge I invite you, young detectives of knowledge, to delve into the depths of the past to unravel one of science's greatest enigmas. Prepare your inquisitive minds, for the journey will lead you to the remarkable deeds of a brilliant mind.

On the fringes of the nineteenth century, in a country under the shadow of foreign rule, I was born to change the course of history. I was born and there were 54 days left in the year of the Gregorian calendar and from an early age I showed a burning passion for knowledge and discovery. My early years were marked by a relentless search for knowledge, I felt an insatiable thirst that would guide me along the paths of science.

SINGLE SOLUTION; DIFFICULTY LEVEL 3

My story unfolds in a mysterious way. I've crossed borders and defied conventions. My journey took me to distant lands, where I plunged into the depths of knowledge. My steps were guided by curiosity and determination, attributes that set me apart from my fellow scientists. Need some more clues? Allow you to know a few more. My remarkable work earned me the honor of winning the prize that began to be distributed five years after the death of its founder, and my groundbreaking work shed light on the mysteries of an intriguing natural phenomenon, opening up new horizons for scientific understanding.

Now, dear knowledge detectives, with the clues provided, the time has come to join your efforts and unravel the riddle. Who am I? Who is the brilliant mind behind these revealing clues?
It is time for you to give your answer, and may wisdom guide you towards the truth!



SINGLE SOLUTION; DIFFICULTY LEVEL 3

DETECTIVE'S PROBLEM 8: Amazing trip

When I was flying toward the Earth I saw this beautiful long braid. I was so curious to explore it that I landed at its source in a mountain near a big city that is accessible only by river or by air. I walked down the river following its flow. After 131 days and 12 hours, I reached the mouth of this breathtaking river. Did you find the name of the city where I landed? And the name of the river?

Link to the designed task

SINGLE SOLUTION; DIFFICULTY LEVEL 3

DETECTIVE'S PROBLEM 9: Mysterious disappearance

You are a group of budding detectives attending a prestigious detective academy. Your final task is to track down a person who has mysteriously disappeared. The authorities were unable to find them and your academy was tasked with solving this high-profile case. Your task is to follow the clues and unravel the mystery.

Hidden in the maze of innovations is the key to his abode. Follow the trail of ingenuity that winds through space and harnesses the power of the celestial bodies.
Gaze at the twinkling stars where dreams are forged in the vast universe. In the midst of the endless void, aspirations run wild, propelling humanity towards unknown regions.
But don't overlook the radiant glow of the sun, for within its fiery embrace lies a source of inexhaustible energy. The search for sustainable energy and their relentless pursuit of solar technology may be the key to their disappearance.
And amid the whispers of progress, plunge into the realm of electric dreams. Explore the trails where pioneering spirit electrifies the landscape and sparks a revolution in transportation and energy consumption.
As you decipher this cryptic message, remember that the threads of innovation intertwine and lead to the core of the mystery. Unfold the tapestry of endeavor and you will discover an elusive truth that eludes mere mortals."

SINGLE SOLUTION; DIFFICULTY LEVEL 3

DETECTIVE'S PROBLEM 10: What's for homework?

Friends, help me out! I'll remember that Tuesday, April 23, for the rest of my life! I was so tired during literature class that I could barely keep up with what was being said. And then, at the end of the class, our teacher told us she expects us to easily do an essay for next week and to make an effort because it's for a grade. I need that grade, but I'm a bit embarrassed to ask someone in the class what our assignment is... Besides, everyone will mockingly ask me what I was doing in class if I don't know.

I remembered a few moments from class; I think I can help in figuring out what or who we need to write the essay about.

- At the end of the class, the teacher played a song by The Verve and Bee Gees, saying that they should serve as an association for us... (I didn't hear).
- I remember Henry (who, obviously like me, was partially paying attention in class) very excitedly commenting on how easy the homework will be because his uncle is a passionate fisherman and knows about fishing gear. Everyone looked at him confusedly, and no one understood what fishing gear had to do with the essay. Laertes assumed that Henry mixed up names.
- Finally, Rosie commented on how she will mention William Blake in her work, but as a painter.

Link to the designed task

SINGLE SOLUTION; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 11: Lost artifact

At an intersection between art and history, a modern artifact has gone astray amid the vast galleries of one of the world's most illustrious cultural institutions.

During an exchange trip, a student from our school lost her cell phone.
Among the masterpieces that adorn the walls and the majestic corridors, this little treasure trove of digital communication has been lost in a labyrinth of beauty and meaning.
The owner of the small treasure and her colleagues left you some clues about the trip.

Will you be able to find the exact place where the artifact was left?

SINGLE SOLUTION; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 12: Message from the journey

Nata went on vacation. After a few days, she wants to share her impressions with her best friend, Hana, and sends her messages. Hana knows where Nata's destination is, but she doesn't know which specific place she is excited about. Can you estimate which country Nata went to and which location she finds particularly interesting?

Nata: Hi Hana, I arrived three days ago! Everything is fine, and the flight went great! We flew with Wizz Air from Serbia. In one of our conversations, it seems I told you that their flights are affordable for this destination if you book in advance. There's a price difference depending on the day of the flight, so I chose Thursday because the ticket was cheaper that day.
When we arrived, it was raining, and the wind was strong. I was afraid the wind would blow me away to some palm tree. We took a bus from the airport to the place where we're staying; it took us about 40 minutes. The bus ticket costs €2.5, which is much cheaper than ordering a ride through Bolt. The next day, the rain stopped, so we enjoyed by the sea with coffee and a view of the boats. In March, it's still not time for swimming; if only it were May, it would be possible.

Link to the designed task

SINGLE SOLUTION; DIFFICULTY LEVEL 4

So far, we've visited the place where we're staying, the current capital, and the former capital. The weather was better than the evening we arrived, but still cold compared to my expectations. Here, early March is mostly like spring. For breakfast, I never miss their famous pastry with cheese in the shape of a shell, one of the traditional dishes in this area. I don't speak their language, but luckily English is equally used. I'm sending you a contribution with the pictures I've taken so far.

SINGLE SOLUTION; DIFFICULTY LEVEL 4

What I'm especially looking forward to is going to the village nearby; check out the link with curiosities about it Curiosities . I've heard a lot about it since I was little, and when I learned to read, I eagerly flipped through comics! I can't wait to take photos with the hat and see where the filming took place! I don't always have internet on this trip, so I'll let you know when I have access to Wi-Fi, with new photos. Regards!

Hana: Hi Nata! I'm glad you're enjoying yourself! I hope you'll have a great time in this Mediterranean country. The link you sent me isn't working; I'm not sure what village you're talking about? I'll try to find out what you mean. Enjoy!

Oooops! Link doesn't work, and Hana is very curious. Help her find where her friend traveled and to which village she plans to go.

SINGLE SOLUTION; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 13: The Abandoned City

Mark Ford, a famous explorer, archaeologist, ethnologist, anthropologist, film buff and member of a secret society has disappeared. He left a trail for those who would like to find him and join him in another of his adventures.
He wrote the following in his diary:

There is a town where no one lives anymore. It is only 20 kilometers from the another city, but hardly anyone goes there now. It used to be very populated and noisy.

It is a really unusual city: it is located simultaneously on two planets, in two countries, in two systems, in two times. The countries, at least, are named similarly. One of them has two Suns. It is both a desert and a port city at the same time.

Mostly people lived in it. Various languages were spoken, from Arabic, English and French to languages unknown to Earthlings.

Link to the designed task

SINGLE SOLUTION; DIFFICULTY LEVEL 4

This city was made famous by the wars that were fought from 1977 to 1983. Those wars made a young pilot famous, who is also a native of that city. However, the real expansion and popularity of this city was experienced in 1999, when the project named "The unknown threatens" was realized in it. (Or something like that was the name of the project…)

Do you know where Mark Ford went?

OPEN ENDED; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 14: The Baffling Botanical Riddle

The Brainville Botanical Gardens have been the pride of the city for decades, known for their exquisite and rare plant collections. However, recently, the head botanist, Dr. Flora, has noticed that someone has been tampering with the plants, causing them to wilt and die. She suspects that the culprit is trying to sabotage the upcoming Botanical Showcase, where the gardens are set to unveil a new, extremely rare flower. As a young detective with a keen interest in botany, you've been asked to help uncover the saboteur and save the rare flower before it's too late.

Dr. Flora has provided you with some clues to help you identify the saboteur:

1. The rare flower is called the "Moonlight Marvel" and only blooms once every five years.
2. The saboteur left behind a cryptic note that reads: "The key to my identity lies within the colors of the rainbow, but not all colors are present. Red, orange, and yellow, you'll see, but the others are absent, leaving only three."
3. Security footage shows a figure wearing a hat and carrying a watering can entering the greenhouse late at night.
4. Three suspects have access to the greenhouse: the assistant botanist, the groundskeeper, and the garden's benefactor.

OPEN ENDED; DIFFICULTY LEVEL 4

5. Upon questioning, you learn that the assistant botanist's favorite color is green, the groundskeeper's is blue, and the benefactor's is indigo.

Using the clues provided, your task is to determine the identity of the saboteur and explain their motive. Think creatively and consider multiple possibilities. Submit your solution, along with a detailed explanation of your reasoning.

"The key to my identity lies within the colors of the rainbow, but not all colors are present. Red, orange, and yellow, you'll see, but the others are absent, leaving only three."

[Link to the designed task]

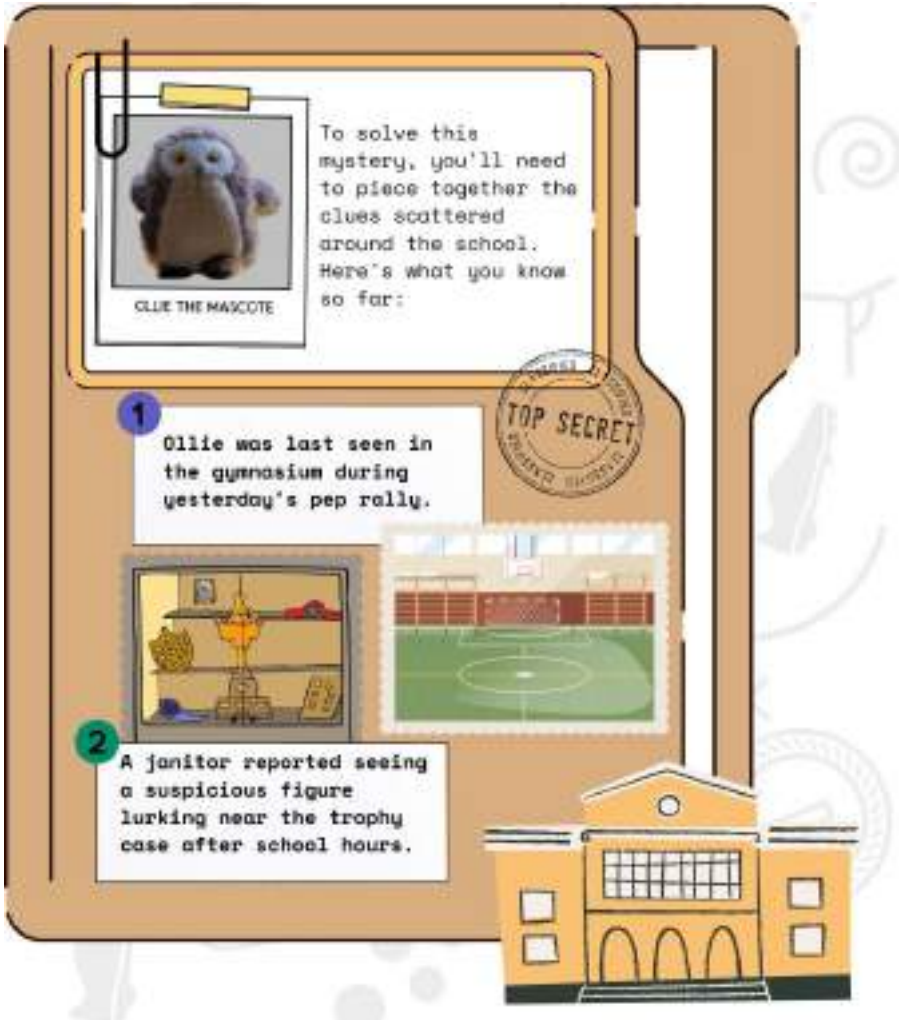
SINGLE SOLUTION; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 15: The Case of the Missing Mascot

Brainville Middle School is in a state of distress. Their beloved mascot, a stuffed owl named Ollie, has gone missing! Ollie is more than just a mascot; he's a symbol of the school's spirit and pride. The students are determined to find him before the big game against their rivals, the Westfield Panthers. As a young detective, you've been called upon to crack the case and bring Ollie back home.

To solve this mystery, you'll need to piece together the clues scattered around the school. Here's what you know so far:

- Ollie was last seen in the gymnasium during yesterday's pep rally.
- A janitor reported seeing a suspicious figure lurking near the trophy case after school hours.



SINGLE SOLUTION; DIFFICULTY LEVEL 4

- A note was found in Ollie's usual spot, with the following message: "If you want to see Ollie again, you'll have to solve the riddle: I speak without a mouth and hear without ears. I have no body, but I come alive with the wind. What am I?"
- The school's security cameras captured a blurry image of someone carrying a large bag near the football field.
- A teacher overheard a group of students from Westfield High talking about a plan to sabotage Brainville's chances at the big game.

Your task is to use these clues to:

- Determine who the most likely culprit(s) might be and their motive for taking Ollie.
- Suggest possible locations where Ollie might be hidden.
- Explain your reasoning using the available evidence.

[Link to the designed task]

SINGLE SOLUTION; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 16: Santa

In December 2023. You received this letter from Santa Claus. "The holidays have arrived and it's not really cold. I remember one winter vacation of mine in July over forty years ago when it was the coldest weather ever. The name of the station where I stayed reminded me of the company that produces watches. I loved those watches, even when they named a model after the president who abolished me. But never mind, you still believe in me anyway." What kind of winter vacation in July is Santa Claus talking about? What brand of watch is it, and who is the president he's talking about?

SINGLE SOLUTION; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 17: Actor

In 2022. a famous movie character addressed us and told us the following: "I am on an island in the middle of a lake on an island. Interestingly, on the island where I am, there is another lake with something like an island. Even stranger is that my coordinates are whole numbers. And in the Big Apple, those coordinates are an address. If you look around a bit, you'll see the familiar pizzeria from which I was fired. You don't have to send me a slice of pizza, but my photo with the hat from that pizzeria would mean a lot to me."
Who is this movie character? Please provide evidence to support your answer.

SINGLE SOLUTION; DIFFICULTY LEVEL 4

DETECTIVE'S PROBLEM 18: Mysterious Sky

In an old and mysterious school, students begin to uncover intriguing puzzles scattered throughout the corridors to gain access to the mystery room.

The final puzzle arises when a student finds an ornate key at the bottom of a forgotten drawer in the library. Next to the key, there is a note with the message: 'The key to knowledge lies in the stars. The hottest time of the year and the wild flying animal will guide the sky, but only in multiplication will it be revealed.' Discover the celestial code that unlocks the door to the mystery room.

SINGLE SOLUTION; DIFFICULTY LEVEL 5

DETECTIVE'S PROBLEM 19: Danger in ancient city

Jaka discovered a diary in the attic that belonged to his great-grandfather Ludvik. His mother told him that Ludvik loved to explore the southern lands across the pond. He was particularly interested in ancient civilizations. While reading the diary, he learned many interesting things. He especially liked the entry about an incident that happened to his great-grandfather while wandering through an ancient city shaped like a feline predator, which Ludvik called the "Navel of the World".

Here's how it goes: "Ouch! My eyes are burning! I didn't even mean to disturb that stick-like insect. Just wanted to take a photo. But it sprayed me with some liquid. Straight into my eyes. Quite the aim it has! Then it scurried away on its six legs. And so did I. Guess it was just afraid of me."

Help Jaka figure out which city his great-grandfather was in and which insect sprayed him. As proof, include a photo of the city and the insect.

SINGLE SOLUTION; DIFFICULTY LEVEL 5

DETECTIVE'S PROBLEM 20: Find Your Family

You are trying to find your grandmother's precious ivory bracelet in the attic of her old house. You remember it fondly on her arm and want to bring her memory closer by wearing it yourself.
Suddenly among her clothes you feel a piece of paper. You unfold it only to find a faded picture. It looks like a flag and you can see that the stars on it had colors but they are unrecognizable now.
It seems your grandmother has left you a message.

"My dear, dear child. I know what you are looking for. My lovely bracelet has been sent back to our real family- a rare and beautiful tribe of sea people who are waiting to meet one of their last descendants. They live in isolation as the hardships of today's world prove too hard for them to bear. I will not ruin their tradition by revealing their location. See the truth in my words and go find your family. Read my message below and put the pieces together to discover your home.

"1 White dove, 4 red hearts, do not let the blackness of the world dim your golden light. The watery song of the numbers will take you home if you weave their starry colors correctly together."

SINGLE SOLUTION; DIFFICULTY LEVEL 5

DETECTIVE'S PROBLEM 21: A Happy Visit

Dear children,
I am so happy to be able to contact you and share with you a smiley moment or two. It was not easy to reach this place from my home but I was very serious about seeing this lovely place and meeting its native animals.I took maybe the longest flight of my life from London and by the time I reached the capital the day had already finished and another one had begun hours and hours ago. It's so far!
Then I had to take another plane and then - a ferry!

However, the Q_____ are lovely and even though I wouldn't pet them, I can look at them for days. Here on R_____t I_____d the days are sunny and the sand and water are amazing!
I hope you can visit, too. Trust me, it's worth it even if only to see these happy little _____s.

Lots of kisses,
Your sandy friend

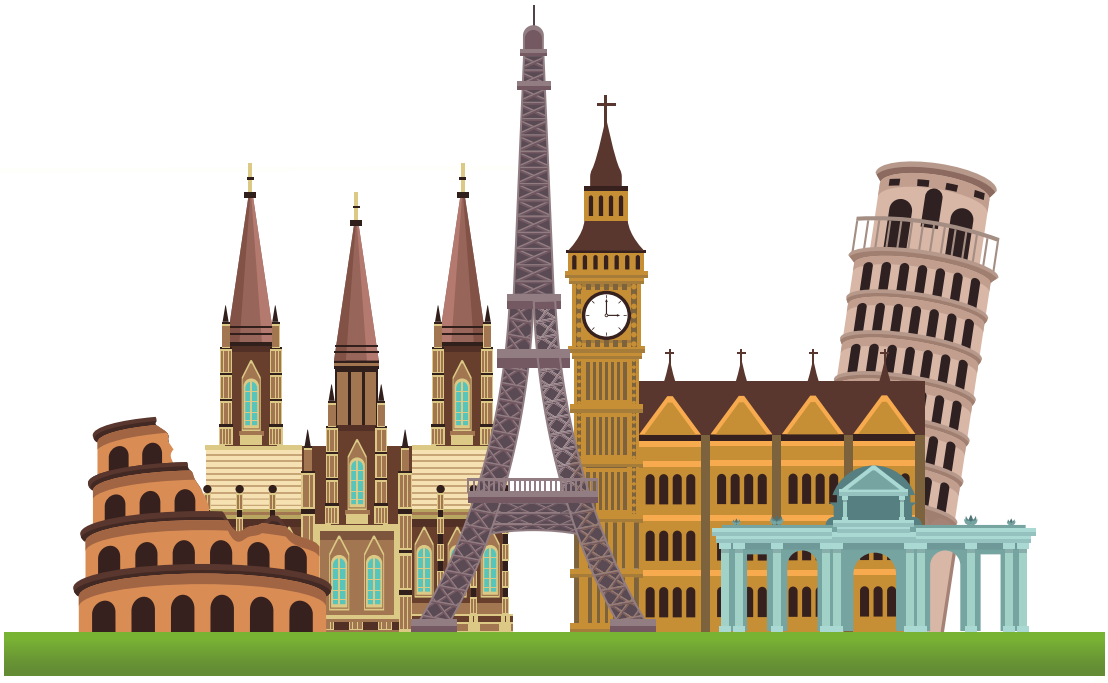
Find out where your friend is and which animal they are talking about.

SINGLE SOLUTION; DIFFICULTY LEVEL 6

DETECTIVE'S PROBLEM 22: Teacher's age

The history teacher challenged his students to discover his age. "You will find my age hidden in a city of seven hills, where the rivers meet. To find it, go to the place where the eagles soar, and the answer will be before your eyes."

Determined to solve the riddle, the students traveled to the eternal city. Upon arriving there, they noticed an intriguing inscription that led them to a specific point between the Flavian Amphitheater and the Temple of Venus and Roma. Upon closer examination of the monument, they found two sets of numbers. By adding the numbers together, they discovered the age of the professor, thus solving the mystery.
If you haven't been to this city yet, you should go virtually, and send us a photo of the place with the teacher's age.



SINGLE SOLUTION; DIFFICULTY LEVEL 6

DETECTIVE'S PROBLEM 23: Walk this Way

The thieves of the item seem to be having fun. They have left you a note - to tease you. But in their arrogance they have left a clue or two…

Their note says:
"Well, well, well..wasn't that easy? Some trees grow fruit, others grow…foot. Don't you think it's too 19th century of you to be so naive? Even in the 1930s people used to be smarter than this. We'd say run, don't walk if you want to catch us."

Now with that note in your hand, all that is left for you is to train yourself to see behind the words. Use all the resources at your disposal. Just do it!

Link to the designed task

DECIPHERING

DIFFICULTY LEVEL 3

DECIPHERING 1: The Quest for the Legendary Computer Genius

You are shown a series of encrypted messages written in a secret cipher. Each message contains a clue that will bring you closer to discovering the identity of the hidden computer genius.

Encrypted message 1:

QSBzaGlwIGlulHBvcnQgaXMgc2FmZSwgYnV0IHRoY XQncyBub3Qgd2hhdCBzaGlwcyBhcmUgYnVpbHQg Zm9yLg==

Encrypted message 2:

SSd2ZSBhbHdheXMgYmVlbiBtb3JlIGludGVyZXN0Z WQgaW4gdGhlIGZ1dHVyZSB0aGFulGlulHRoZSBwY XN0Lg==

Encrypted message 3:

VGhlIG1vc3QgZGFuZ2Vyb3VzIHBocmFzZSBpbiB0a GUgbGFuZ3VhZ2UgaXMs4oCYV2UndmUgYWx3YXlz IGRvbmUgaXQgdGhpcyB3YXku

Tips:

You can find the encoding method at the location:

00110100 00110000 11000010 10110000 00110100 00110101 00100111 00110000 00110001 00101110 00110001 00100010 01001110 00100000 00110111 00110011 11000010 10110000 00110101 00111000 00100111 00110101 00110010 00101110 00110010 00100010 01010111 00001010

This message should be deciphered in English.

DIFFICULTY LEVEL 2

Conclusion:

After you successfully decode all the messages and piece together the clues, you will reveal the identity of the legendary computer figure. Good luck code breakers, keep your mind sharp and your wits sharp as you embark on this exciting puzzle adventure!

DIFFICULTY LEVEL 4

DECIPHERING 2: Encrypted message

In a murky tangle of ancient scrolls, a long-forgotten secret has emerged: in the words whispered by an occult manuscript lies a message intended for the young and fearless, encoded in symbols and shadows.

Rick Riordan, the herald of myths woven into plots of heroism, carries with him a singular burden. Within its pages, beyond the adventures that enchant, lies an enigma for those willing to unravel its mysteries.

Between the lines of the message, a hidden key awaits revelation: if A is B, then B is A; Just like the sun and the moon, constantly dancing, reminding us that even opposites are one when the journey is complete.

“Dh doc lcsdrcss ocvlds dovd sccm vpswcls up doc vpeucpd nvgcs, lckckbcl: yhil jhilpcys vlc rvbylupdos whacp by dolcvts hf fvdc. Yhi wurr cpehipdcl khpsdcls vpt whptcls, bid doc lcvr kvgie rucs up doc ehilvgc dh veecnd yhilscrf vs dococlhcs hf yhil hwp sdhlucs."

Signed: Luem Luhltvp

This message should be deciphered in English.

DIFFICULTY LEVEL 4

DECIPHERING 3: Tasty Discovery

Hello, hello, sweet tooth!

You have come to the right place! We serve only the best pastries in the city and we would love to make you smile with some of our best creations. What is it that you would like to order?
What is it…? You are not here to eat but to learn?!
Ha! Do you maybe think everyone can cook?! Do you feel that you have got what it takes?

Good cooks are smart cooks! Good cooks know their worth and can see through the pretense and feel their food! I can train you but you must prove to me that you can extract a simple recipe from my riddle below.

DIFFICULTY LEVEL 4

It is easy to create a rainbow. Just follow the instructions.

“Preheat your oven to 350°F (180°C). Grease and flour a 9-inch round cake pan.

- In a large mixing bowl, combine the Sunshine and Hugs. Mix well until the mixture becomes fluffy and light.
- Slowly add the Stars into the mixture, stirring continuously to avoid lumps.
- Melt the Smile using a double boiler or microwave until smooth. Allow it to cool slightly before adding it to the batter.
- Mix until the Smile is fully incorporated.
- Pour the batter into the prepared pan and spread it evenly.
- Bake in the preheated oven for 25-30 minutes or until a toothpick inserted into the center comes out clean. Once baked, remove the Rainbow from the oven and let it cool in the pan for 10 minutes. Then transfer it to a wire rack to cool completely.
- While the Rainbow is cooling, prepare the top by melting more Smile and spreading it over the top.
- Decorate the cake with Kisses on top for an extra touch of sweetness.”

Hint: Kisses grow on people but in this recipe - they do so on trees.

This message should be deciphered in English.

DIFFICULTY LEVEL 5

DECIPHERING 4: Behind the mirror

DIFFICULTY LEVEL 5

DECIPHERING 4: Behind the mirror

Passing through the mirror, Alice saw a huge sign on a tree with a message for all those who come to the Land behing the mirror. She dared not proceed further until she deciphered this, as it could cost her her life.

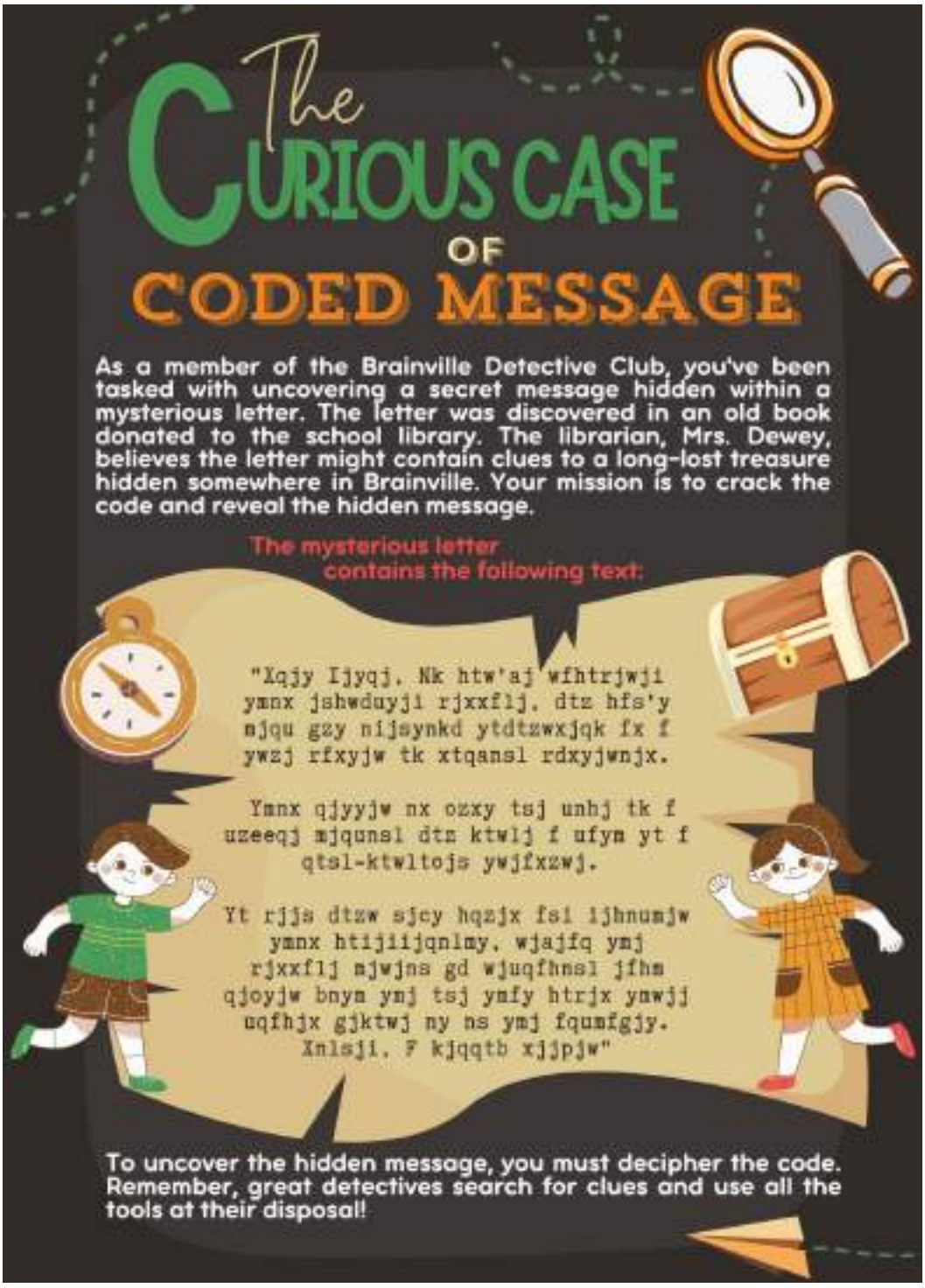
With certainty, she knew that each letter of the alphabet was a replaced with a number, but she didn't immediately discern the substitution principle... Suddenly, for a moment, the Cheshire Cat appeared on the tree branch and said:
Help Alice decipher this message.

This message should be deciphered in English.

Link to the designed task

DIFFICULTY LEVEL 6

DECIPHERING 5: The Curious Case of the Coded Message



DIFFICULTY LEVEL 6

DECIPHERING 5: The Curious Case of the Coded Message

As a member of Brainville Detective Club, you've been tasked with uncovering a secret message hidden within a mysterious letter. The letter was discovered in an old book donated to the school library. The librarian, Mrs. Dewey, believes the letter might contain clues to a long-lost treasure hidden somewhere in Brainville. Your mission is to crack the code and reveal the hidden message.

To uncover the hidden message, you must decipher the code. Remember, great detectives search for clues and use all the tools at their disposal!

This message should be deciphered in English.

Link to the designed task

TASKS' SOLUTIONS

LOGIC PUZZLES SOLUTIONS 1/7

Logic puzzle 1

TEAM A	HOCKEY	TUESDAY
TEAM B	FOOTBALL	WEDNESDAY
TEAM C	HANDBALL	THURSDAY
TEAM D	BASKETBALL	MONDAY

Logic puzzle 2

VASCO	VIOLIN	2
ZARA	PIANO	4
CONSTANÇA	DRUMS	5
ZACK	HARP	3

Logic puzzle 3

NAME	1ST	2ND	3RD	4TH	5TH	6TH	6A	6B	6V
BORIS						+			+
VANYO	+								+
NICKOLAY				+			+		
PETYO		+						+	
ROSEN			+					+	
SPAS					+		+		

LOGIC PUZZLES SOLUTIONS 2/7

Logic puzzle 4

NAME	NIGERIA	UGANDA	KENYA	INDIA	CAMERON	100	190	290	1900	2900
KOKO		+				+				
ZARA	+						+			
MACHALI				+				+		
FATU			+						+	
AVA					+					+

Logic puzzle 5

CLASS	COST	DISTANCE	TRANSPORT
12/1	500€	688KM	PLANE
12/2	450€	437KM	CAR
12/3	300€	483KM	TRAIN
12/4	350€	707KM	BUS

Logic puzzle 6

This is an open-ended logical puzzle. There are more than one possible solutions.

DAY	17.00	19.00
THURSDAY	POP	HIP-HOP
FRIDAY	ROCK	COUNTRY
SATURDAY	HIP-HOP	POP
SUNDAY	COUNTRY	ROCK

DAY	17.00	19.00
THURSDAY	HIP-HOP	POP
FRIDAY	COUNTRY	ROCK
SATURDAY	POP	HIP-HOP
SUNDAY	COUNTRY	ROCK

LOGIC PUZZLES SOLUTIONS 3/7

Logic puzzle 7

CLASS	MUSIC	ENGLISH	PHYSICAL EDUCATION	ART
7º1	FRI	TUE	THU	WED
7º2	WED	TUE	THU	MON
7º3	MON	TUE	THU	FRI
7º4	WED	MON	TUE	FRI

Logic puzzle 8

NAME	GUITAR	VIOLIN	PIANO	FLUTE	SPANISH	FRENCH	ENGLISH	GERMAN	PETKO	RADI	MIKO	HRISTO
MARIA	+				+				+			
LILY			+					+		+		
ZHANA				+		+					+	
KATYA		+					+					+

Logic puzzle 9

NAME	AUTHOR	BOOKS READ	LITERARY GENRE
ALEX	WILLIAM SHAKESPEAR	5	NOVEL
MICHAEL	J.K.ROWLING	3	POETRY
MARIA	HANS CHRISTIAN ANDERSEN	4	FICTION
THEO	ANTOINE DE SAINT-EXUPÉRY	7	TALE

LOGIC PUZZLES SOLUTIONS 4/7

Logic puzzle 10

SECOND FLOR	NICKNAME	BROTHERS	CURLY	TALL
	PROFESSION	MUSICIANS	STEWARD	ATHLETE
	NOISE	ARGUMENTS	COUGH	PARTIES
	APARTMENT NR	4	5	6
FIRST FLOOR	NICKNAME	MUSTACHE	NICOLAS, JOHN	SNEAKY
	PROFESSION	DOCTOR	STUDENTS	RETIREE
	NOISE	SOUND OF WATER	DOG BARKING	LOUD TV
	APARTMENT NR	1	2	3

Logic puzzle 11

SHELF NR	1.	2.	3.	4.	5.
GRADE	V	VI	VII	IV	VIII
AUTHOR	ARISTOTEL ELEFTHERIU	TAYLOR TATE	NIKA PAPADOPULU	HELENA STEFANAKI	JANE GALAGHER
TITLE	LETTERS FROM A PIRATE	TAILOR'S TALE	MARS ATTACKS!	STORIES FROM A POCKET	SF FOR BEGINNERS

Logic puzzle 12

CLASS	MONTH	CITY	MONUMENT
7A	AUGUST	BERLIN	TOWER
7B	JUNE	PRAGUE	WALL
7C	JULY	STOCKHOLM	STATUE
7D	SEPTEMBER	PARIS	CATHEDRAL

LOGIC PUZZLES SOLUTIONS 5/7

Logic puzzle 13

STUDENT	GRADE	PROJECT
DAVE	8	PHYSICS
BOB	5	CHEMISTRY
EMILY	6	BIOLOGY
ALICE	7	ROBOTICS
CINDY	9	ASTRONOMY

Logic puzzle 14

ROW	STUDENTS	STUDENTS	STUDENT
4	SUZANA & ANA	SARA & BRANKO	STEFAN
3	MARCUS & NINA	ELENA & VUK	LUKA
2	JOVAN & SANDRA	JULIJA & NIKOLA	ALEKSANDAR
1	ALEKS & LIDIJA	NOVAK & MIRELA	SASA

Logic puzzle 15

STUDENT	LOCATION	ORGANISM
LUCAS	FOREST	OAK TREE
SOPHIA	LAKE	TROUT
OLIVIA	MEADOW	DAISY
ETHAN	CAVE	BAT
AVA	RIVER	FIREFLY

LOGIC PUZZLES SOLUTIONS 6/7

Logic puzzle 16

SKI JUMPER	COUNTRY	DISTANCE	POINTS
KATHARINA	AUSTRIA	96,3M	96
ALEXANDRA	NORWAY	90,1M	89
IKO	JAPAN	110,8M	103
NIKA	SLOVENIA	105,6M	110
SARA	GERMANY	86,4M	82

Logic puzzle 17

SCORES	A.I.	INSTITUTIONS	TEAM HEADS
55%	PROCLUS	CAMBRIDGE	ABBRATOZZATO
62%	PYTHAGORAS	SFIT	ODLE
69%	ZENO	UCLA	DOWER
76%	ACHIMEDES	CIT	COULSON
83%	THALES	MIT	WHITLAW

Logic puzzle 18

WINGSPANS	NAMES	AGES	LOCATIONS
102 INCHES	CHALIE	9	FOLSOM BEND
106 INCHES	SPIKE	11	CORDELL MESA
110 INCHES	SUNSHINE	12	BINGHAM CANYON
114 INCHES	MERLIN	5	ALKALI RIDGE
118 INCHES	BUDDY	10	RALTON PASS

LOGIC PUZZLES SOLUTIONS 7/7

Logic puzzle 19

PRICES	ROLLS 1	ROLLS 2	CUSTOMERS
$9.50	ALASKAN	YELLOWTAIL	YVETTE
$11.50	DRAGON	SPIDER	GILBERT
$13.50	CALIFORNIA	VOLCANO	TED
$15.50	FIRECRACKER	RAINBOW	ALLAN
$17.50	HAWAIIAN	SPICY TUNA	FRED

Logic puzzle 20

COLOR	SPONSOR	PILOT EXP.	DESTINATION	DISTANCE
GREEN	BAKERY	5 YEARS	RIVERTON	80 KM
YELLOW	PET SHOP	ROOKIE	MILFIELD	90 KM
ORANGE	TOY STORE	3 YEARS	BRIGHTVILLE	100 KM
BLUE	CAFE	10 YEARS	SUNNYVALE	150 KM
PURPLE	FLORIST	VETERAN	HILTOP	120 KM

Logic puzzle 21

STUDENT	GRADE	GAME BOOTH	PRIZE	TICKETS
OLIVIA	6TH	RING TOSS	RIVERTON	2
NOAH	7TH	BALOON POP	STUFFED ANIMALS	3
EMMA	8TH	BASKET SHOOT	GIFT CARDS	5
AVA	6TH	DART THROW	TOYS	4
LIAM	8TH	BALL ROLL	SCHOLL SUPPLIES	4

SOLUTIONS TO DETECTIVE'S TASKS 1/6

Detective's task 1

The name of the tragedy Romeo and Juliet William Shakespeare ; Verona - Italy

Detective's task 2

Chillon Castle (Chateau de Chillon); the poet is Lord Byron (the poem is The Prisoner of Chillon); ADA the programming language named after Byron's daughter Ada Lovelace

Detective's task 3

Hermione: Scene 31 minutes and 40 seconds into the movie 'Harry Potter and the Prisoner of Azkaban'

Detective's task 4

The Gardens of Versailles / Palace of Versailles; The Goddess - Leto (her children Apollo and Artemis); Neptune - Roman God/ Poseidon - Greek God

SOLUTIONS TO DETECTIVE'S TASKS 2/6

Detective's task 5

TAYLOR SWIFT

Detective's task 6

Popcorn

(The inventor who revolutionized travel is Orville Wright. Orville is also the name of the ship in the American sci-fi TV series Orville. River January is Rio de Janeiro which is in Brazil, that is also the name of the northamerican city the scientist was born in (it's in Indiana). The scientist is Orville Redenbacher. There are MTV movies and TV awards that are in the shape of this snack. Actor who received this award in a plane is Tom Cruise. The statue of Orville Redenbacher is in the city Valpairaso, Indiana, which is known for its annual popcorn festival.)

Detective's task 7

Marie Curie

Detective's task 8

The city is Iquitos (Peru); the Amazon river

Detective's task 9

The first clue speaks about space exploration. The second is about solar energy and the third clue hints at electric transportation - Tesla. Final clue tells us that we have to look for someone who is intertwined with all previous three answers. There is only one person who explores space, researches solar energy and is linked with electric transportation - Elon Musk

SOLUTIONS TO DETECTIVE'S TASKS 3/6

Detective's task 10

William Shakespeare

Detective's task 11

Napoleon Apartments - Musee du Louvre
1. Arrange the images to get the coordinates of the location: 48,861 and 2,335
2. Through the image without number, locate the mobile phone in the living room of Napoleon's chambers.
The cell phone was lost in the living room of Napoleon's apartments at the Louvre Museum

Detective's task 12

Popeye Village, Malta

Detective's task 13

Mos Espa, a movie city, built in Tunisia for the filming of Star Wars

SOLUTIONS TO DETECTIVE'S TASKS 4/6

Detective's task 14

There are multiple plausible solutions to this problem. One possible solution is:
The saboteur is the garden's benefactor. The note left behind mentions that the key to their identity lies within the colors of the rainbow, but only red, orange, and yellow are present. The suspects' favorite colors are green, blue, and indigo – all colors that are not mentioned in the note. This suggests that the saboteur is trying to mislead the investigation by emphasizing colors that are not associated with the suspects.

Furthermore, as the garden's benefactor, this individual may have a motive to sabotage the Botanical Showcase. Perhaps they have a financial interest in seeing the gardens fail, or maybe they have a personal grudge against Dr. Flora. The fact that they have access to the greenhouse and were not initially suspected makes them a prime candidate for the saboteur.

Detective's task 15

The culprit is the Westfield High students. They took Ollie to undermine Brainville's morale before the big game. The riddle's answer is "an echo," which suggests that Ollie is hidden somewhere with good acoustics, like under the bleachers at the football field. The suspicious figure and blurry camera footage support this theory.

SOLUTIONS TO DETECTIVE'S TASKS 5/6

Detective's task 16

Winter vacation in July suggests it's happening somewhere in the Southern Hemisphere. It's easy to find that the lowest recorded temperature by the end of 2023 was on July 21, 1983, in Antarctica at the Vostok Station. That's also a watch brand, and one model of Vostok watches was named after the Cuban president Fidel Castro.

Detective's task 17

Island talked about by the movie character can be seen on the following link. The integer coordinates on that island are 14°N 121°E. Near the address 121 E 14th Street in New York City, at the time the letter was sent, was Joe's Pizza, where Spiderman was fired.

Detective's task 18

33 IS THE CODE

The Summer Triangle is composed of three bright stars - Altair, in the constellation of Aquila (the eagle), Deneb, in the constellation of Cygnus (the swan), and Vega, in the constellation of Lyra (the lyre or harp).

Multiply the stars of the Aquila constellation (eagle) (11) by the number of stars in the Summer Triangle (3). 11X3= 33.

SOLUTIONS TO DETECTIVE'S TASKS 6/6

Detective's task 19

City: Cusco/Cuzco
Insect: Peruvian velvet stick-insect/Peruvian stick-insect

Detective's task 20

Kapingamarangi
Coordinates: 1°4′N 154°47′E

Detective's task 21

Rottnest island, the animal is Quokka.

Detective's task 22

30 years.
Sum of the Roman numbers x + xx = 30 years found on the Arch of Constantine (Rome) on its columns, to the south on the right (east) and to the left (west).

Detective's task 23

The solution is a Sneaker from the first Sneaker Factory - New Liverpool Rubber Company.

DECIPHERING SOLUTIONS 1/2

Deciphering 1

Encrypted message 1 decoded: "A ship in port is safe, but that's not what ships are built for."
Encrypted message 2 decoded: "I've always been more interested in the future than in the past."
Encrypted message 3 decoded: "The most dangerous phrase in the language is, 'We've always done it this way.'"
Legendary computer figure is Grace Hopper.

Deciphering 2

“To the restless hearts that seek answers in the ancient pages, remember: your journeys are labyrinths woven by threads of fate. You will encounter monsters and wonders, but the real magic lies in the courage to accept yourself as the heroes of your own stories."
Signed: Rick Riordan

Deciphering 3

- Cake = Rainbow
- Sugar = Sunshine
- Salt = Ocean
- Flour = Stars
- Eggs = Hugs
- Chocolate = Smile
- Cherries = Kisses

DECIPHERING SOLUTIONS 2/2

Deciphering 4

!NIAGA KCAB EMOC REVEN LLIW UOY EPOH EW DNA EMOCLEW TON ERA UOY .EREH DRAWKCAB SI GNIHTYREVE .SSALG-GNIKOOL EHT DNOYEB DNAL EHT SI SIHT
(The message should be read backwords, of course!)

Deciphering 5

Dear Seeker, If you've uncovered this encrypted message, you can't help but identify yourself as a true master of solving mysteries. This letter is just one piece of a puzzle helping you forge a path to a long-forgotten treasure. To mean your next clues and decipher this code delight, reveal the message herein by replacing each letter with the one that comes three places before it in the alphabet. Signed, A fellow seeker

FINAL WORDS

As you reach the conclusion of this booklet, we hope you feel inspired to embark on the exciting journey of creating your own detective puzzles. Your enthusiasm is likely brimming, much like ours was when we first started! This shared experience is what inspired us to develop such resources.

This booklet is just the beginning—it's part of a broader training toolkit provided by our "Brainfinity Detectives – Collaborative Problem Solving Challenge" Erasmus+ project. Designed to empower educators like you, it offers a comprehensive array of materials. You'll find theoretical insights, essential competencies for teachers aiming to enhance problem-solving skills, detailed instructions, templates for crafting tasks, tools for assessing students' needs, observation forms, and diverse checklists.

We encourage you to leverage these resources to nurture and develop creative thinkers and skilled problem solvers in your classroom. Let this toolkit be your guide in transforming educational practices and making a lasting impact on your students. Thank you for joining us in this endeavor, and may your journey in education be as rewarding and transformative as the puzzles you solve and create!

brainfinity
COLLABORATIVE PROBLEM SOLVING CHALLENGE

Partners

AGRUPAMENTO de ESCOLAS n.º1 de GONDOMAR

TRAINING CENTRE RAGINA

Smart Idea

Institut za moderno obrazovanje
Institute for Contemporary Education

HUB

savremena OSNOVNA ŠKOLA

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Co-funded by the European Union