



# The Beak of the Toucan

13-14



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# The Beak of the Toucan

**Topic:** Mathematics

**Level:** 13-14 years old

**Concepts:** Equations and fractions

**Time required:** +/- 30 min

**Materials needed:** Paper, pen, calculator and your courage!

**Images provided:** Photos and map of the city, with the places of the story. Stamp of Dora's notebook and envelope.

**Location of the adventure:** Pucallpa – Perù (in Quechua Puka hallpa, "red land"). It is a city in central-eastern Peru, the capital of the Ucayali region, located on the banks of the Ucayali River at 154 meters above sea level, in the middle of the Amazon rainforest. It is the second largest inhabited centre of the Peruvian Amazon.

**Other information:** The city relies on the production and trade of tropical products, such as cocoa, coffee, rice, sweet potatoes, pineapples, and bananas. They also commercialise wood for construction and precious woods. In addition, fishing along the Ucayali River is an important source of income as well. The Shipibos are also known for the high quality of their artisanal fabrics.

1

## WHO ARE YOU?

Since you've been through school, you knew that you would never be satisfied with any sedentary job: adventure is your passion! But when you talked about your dream of creating an agency for the recovery of ancient treasures, everyone considered you crazy! "How can you believe that nowadays there are still treasures to be recovered?" However, you can say your determination has paid! Today your agency, **Wonderful Treasures**, has contacts from all over the world and has already unearthed precious artefacts such as the diadem of Princess Ahmose and the treasure of the Viking king Harold I.



Go to paragraph 6.

2

## THE COOK'S LETTER

"In my restaurant, there are 2 and 3-pronged forks. Knowing that the total number of forks is 22 and that the total of tips is 54, how many 2-pronged forks and how many 3-pronged forks are there in the restaurant?"

- Two-pronged forks are less than three-pronged forks

➡➡➡ Go to paragraph 5.

- There is the same number of two-pronged and three-pronged forks

➡➡➡ Go to paragraph 40.

- The two-pronged forks are two more than the three-pronged ones

➡➡➡ Go to paragraph 11.

3

Red was the label you found under the tile! With these words, the man goes towards a shelf, takes out a red briefcase, and places it on the table. He leaves without saying anything. What a strange character. The case is open and inside, you find some Russian dolls, each with a label attached to the belly.

 **Go to paragraph 20.**

4

 **Go to paragraph 17.**

5

The numbers don't remind you of anything. Is there something wrong? You look around, the restaurant in the meantime has emptied, and you are left alone. Unexpectedly, the chef comes to sit right in front of you, putting a strain on the resistance of the chair. You decide to tell him the truth. Unexpectedly he invites you to do a darts race... Dora's friends share her passion for mystery! Only after you start playing, you notice that on the target there are numbers and symbols engraved in wood:

$$x + y = 22$$

$$2x + 3y = 54$$

- X is a number greater than 11

 **Go to paragraph 11.**

- X is a number between 0 and 9

 **Go to paragraph 23.**

- X is a number less than 11

 **Go to paragraph 33.**

6

## YOUR NEW ADVENTURE THE BEAK OF THE TOUCAN

But this is not the time for digressions, you already have your backpack on your shoulder, and you know that your mission cannot wait. However, you are not the only one in search of the legendary Beak of the Toucan, the ancient Inca amulet that belonged to Emperor Atahualpa. But you have something that the others do not: the notebook of Dora Tei, one of the greatest scholars of the Inca civilization, which mysteriously disappeared about 5 years ago during an excavation in Peru.

 **Go to paragraph 10.**

7

## GOING AROUND PUCALLPA



Photo by [Joe Green](#) on [Unsplash](#)

You are in the centre of Pucallpa, a city full of low houses and gardens, and covered with colourful murals from which hummingbirds, snakes, and shamans wink. You look around: everyone seems smiling and kind, but when you ask about Dora, everyone becomes wary and denies knowing her. After a few hours, you are approached by a Shipibo woman, a tribe that stretches from Pucallpa to the Amazon rainforest. She invites you to enter her house, a typical little house of the Amazon countryside, a simple wooden building that, in Europe, could not withstand the weather for more than a couple of months. She tells you that it is better that you do not ask too many questions about Dora Tei; some people may get nervous... She will give information about her if you know how to give the right solution:

"There are currently cats and parrots in my garden s: there are 27 heads and 100 legs. How many cats and how many parrots are there?"

- Parrots are more than 4.

 **Go to paragraph 27.**

- Cats are more than 21 and parrots are more than 3.

 **Go to paragraph 16.**

- Cats are less than 23.

 **Go to paragraph 13.**

**8**

 **Go to paragraph 35.**

**9**

You are puzzled by the result you obtained. You are taken by despair and look out from the small balcony to let the sun recharge your energies. When you return, you notice that the housekeeper kindly brought you some water and a glass. There is also an envelope, just like the one that Magdalena's cook gave you! There are the same initials on the seal! You open the envelope and find another Dora's secret message.

"The sum of the ages of two sisters is 45 years. 15 years ago, the age of the eldest was twice that of her younger sister. Find the age that her younger sister is today."

- The solution is greater than 19 and less than 21.

➡➡➡ ➔ **Go to paragraph 26.**

- The solution is greater than 10 and less than 20.

➡➡➡ ➔ **Go to paragraph 29.**

- The solution is greater than 21 and less than 27.

➡➡➡ ➔ **Go to paragraph 21.**

10

### DORA TEI'S NOTEBOOK

Professor Zaccaria Grom, Dora's husband, has jealously guarded through the last couple of years. One day he knocked on the door of the Wonderful Treasures to deliver it to you. Now you must find the amulet about which Dora spoke in the last pages of her notebook! The last lines immediately signified a clear, albeit enigmatic message on the amulet: "My dear, my latest discoveries expose me to grave danger, but the Beak of the Toucan is still safe. In Pucallpa, go to Magdalena's restaurant and ask the chef for piranha soup." Dora certainly had to know where the Beak of the Toucan was hidden and had left a message to her husband to find it one day. You feel that the notebook is just the beginning of an incredible adventure.

➡➡➡ ➔ **Go to paragraph 14.**



11

Ok! These are your numbers! Now, what to do? The heat is on. Go to the cuckoo clock hanging on the wall. It is broken, but the hours it indicates are exactly those that solve the equation! You go to the clock and notice something on the paw of the colourful bird that stayed outside its little house, who knows how long: it is an expense report for renting a shed in Nueva Requena, a nearby village. There is no doubt that this is another clue from Dora Tei.

 **Go to paragraph 18.**

12

Darn! The number you got does not unlock the lock. There must be something wrong again. You hear footsteps. You turn around and see a child who looks at you curiously and says, "I solved the equation! The number to open the padlock is 003!" You accept help very willingly.

 **Go to paragraph 39.**

13

 **Go to paragraph 27.**

14

## YOUR ARRIVAL AT PUCALLPA



Photo by [Hans Luiggi](#) on [Unsplash](#)

7:30, perfect landing! **Wonderful Treasures'** ultralight arrived at exactly the scheduled time in Pucallpa, Peru, a city in the Amazon rainforest. Given the turbulence encountered over the Andes, meeting the schedule was not an easy task for Sam, the new pilot, who is one of the best you've ever met! For this precise reason, you did everything to have him on your team. Indeed, only the best adventurers can become part of the team of **Wonderful Treasures!**

The mission is too important: to recover precious finds believed lost forever and to designate them as World Heritage goods, by handing them over to the cultural institutions and museums of the country from which they come. How do you intend to proceed?

You can decide to:

- Go around Pucallpa to inquire about Dora Tei.

 **Go to paragraph 7.**

- Go to Magdalena restaurant and look for the chef.

 **Go to paragraph 41.**

15

 **Go to paragraph 28.**

16

Hinting at you with a smile, the woman whispers in your ear:

“If you really want to know something, don't waste your time and go to the Magdalena Restaurant!” And so, you decide to go there.

 **Go to paragraph 41.**

### 17

The number you got does not unlock the lock. There must be something wrong. Go around the shed and find another padlock on a small window overlooking the back of the building. You could try to enter from there. Engraved on the wall is another mathematical scripture.

$$\frac{4}{5} - \left[ -\frac{2}{3} - \left( \frac{x}{5} - \frac{19}{4} \right) - \left( \frac{2x+1}{4} + \frac{8}{5} \right) \right] = \frac{2}{3}$$

- $x$  is greater than 3! Use the number 999 to open the padlock.

—————> **Go to paragraph 12.**

- $x$  is less than 3! Use the number 001 to open the lock.

—————> **Go to paragraph 30.**

- $x$  is equal to 3! Use the number 003 to open the padlock.

—————> **Go to paragraph 39.**

18

## TOWARDS NUEVA REQUENA



Photo by [Timur Kuchubaev](#) on [Pixabay](#)

The road ahead is not very comfortable, the road surface is more disastrous than you imagined. The lack of air conditioning also doesn't help and you're boiling. However, the landscape is worth the detour. The coordinates lead you to a small isolated little street. Here is the shed indicated in the note: it is closed with a large padlock. On the gate you notice a mural: you don't have to be a seer to understand that it is not the expression of street art, but a new Dora's enigma.

 **Go to paragraph 32.**

19




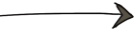


 Go to paragraph 34.

20

## THE ENIGMA OF THE RUSSIAN DOLLS

Putting them in order of magnitude, the following result appears:

$$\frac{1}{4}(2x - 1) = \frac{35}{4} - x$$

- The solution is greater than 5 and less than 7  
  Go to paragraph 22.
- The solution is greater than 1 and less than 6  
  Go to paragraph 35.
- The solution is greater than 6  
  Go to paragraph 8.

21

 Go to paragraph 29.

22

You look around and see that the folders are numbered. Choose the one numbered with the 6, like the result of the equation, and find that within it there are invoices issued by different suppliers, all dating back 5 years. A post-it note indicates a particular expense report, issued by a certain Pablo Quispe for the purchase of a painting. You decide to reach the address in the document. You ring the bell, and a housekeeper opens it.

➡➡➡ → **Go to paragraph 31.**

23

The cook looks upset at you, but snorting, he tells you: "I have to close the place! Listen, Dora asked me to leave something hanging on the cuckoo clock! See what you find! The numbers you should have gotten are 12 and 10, the ones indicated in the broken clock!" Without thinking twice, you go to the clock and notice something on the paw of the colourful bird that stayed outside its little house, who knows how many times: it is an expense report for renting a shed in Nueva Requena, a nearby village. There is no doubt that this is another clue from Dora Tei.

⚡ → **Go to paragraph 18.**

## THE TROPICAL HOTEL



Photo by [Deb Dowd](#) on [Unsplash](#)

You arrive at the Tropical Hotel. Its appearance is far from that of a luxury hotel, and you wonder how there can be a suite in such a building! You go to the reception, and when you ask for directions to reach it, a tall man with a square jaw accompanies you to a dungeon... Strange place for a suite! He stops in front of a small door, and he looks at you as if to test you. You use the key and, even this time, your expectations are completely denied: the suite is in fact a small and messy study, where there is a desk covered with paperwork and a dusty closet full of folders. There are really many of them, of all colours. Consulting them all would be impossible. While you are trying to gather ideas, the man says: "Tell me the colour". Your answer is:



- "I don't know, I'm a friend of Dora's and I hope you tell me."

→ **Go to paragraph 28.**

- "Red."

→ **Go to paragraph 3.**

- "Green."

→ **Go to paragraph 15.**

25

## THE ADVENTURE CONTINUES...

Many other questions are tormenting you: What happened to Dora Tei? Why did she disappear? Why had she written in her notebook that she was in danger? Who were her enemies?

You have found the Beak of the Toucan, but you feel that this is not the conclusion of your adventure, but only the beginning...



Photo by [Wirestock](#) on [Freepik](#)

The end

Well, the answer is clear. Now, if everything works, as usual, you should find something relevant to that number. But where? You look around. Nothing evokes that number. The housekeeper knocks on the door:

"Do you need something else, sir?"

"No, thank you, Ms..."

"Veinte".

"You are the clue I was looking for! I'm a friend of Dora's. Do you have anything for me?"

"I don't know, sir... Who is Dora?"

"Did Mr Quispe leave you nothing for someone to solve the riddle of this canvas?"

"No, I'm sorry."

"Can we contact Mr Quispe?"

"I don't think so, he's currently on the Amazon River, looking for inspiration."

"Darn... Do you remember anything that could date back to 5 years ago?"

"Really, sir, I have nothing for you... 5 years ago, I worked here only a few hours, I was still on duty in the kindergarten ..."

"In the kindergarten? Which kindergarten?"

"The Jardin de los Niños in Isla San Francisco"




Fantastic! Ask Ms Veinte, which means twenty in Spanish, how to get there and thank her warmly.

 **Go to paragraph 43.**

27

She doesn't seem very convinced of your answer, and so she gives you another riddle!

"The age of a father is four times that of his daughter, while 6 years ago, it was ten times the age of his daughter. Determine the age of the two people."

- The father is over 36 years old  
 **Go to paragraph 34.**
- The daughter is under 10 years old  
 **Go to paragraph 16.**
- The father is under 35 years old  
 **Go to paragraph 19.**

28

He doesn't seem to be convinced of your answer and leaves you alone. Darn!... It takes you a long time to check different folders that only contain invoices and documents that are meaningless. The red folder catches your attention. It reminds you of the label's colour under the file! Go back and give the right answer to the man in reception.

 **Go to paragraph 3.**

29

The housekeeper sees you encountering difficulties and, with sympathy, tells you: "I think the answer is 20!" Gratefully accept his help, even if you don't yet know how it will serve you.

➡➡➡ → **Go to paragraph 26.**

30

→ **Go to paragraph 12.**

31

### MR QUISPE PRIVATE ROOM

Perhaps the housekeeper is the first person you meet who treats you without suspicion. "Mr Quispe is out of town but told me to accompany you to his private room." It is likely the hotel had anticipated your arrival. The house is refined but very strange: artistic writings on the walls, paintings scattered everywhere. Mr Quispe's room is very messy. There are unfinished easels and canvases, some thrown to the ground and torn as in a fit of rage, hundreds of sketches hanging on the walls, crumpled sheets on the ground, rags, tubes of tempera scattered everywhere as if they had exploded in the air. You are reminded of Pollock and the art of pouring the chaos of one's unconscious on the canvas, characteristic of **action painting**. But it is a precise canvas that attracts your attention.

→ **Go to paragraph 38.**

32

## THE MESSAGE ON THE MURAL

$$\frac{7}{3} + \frac{2-x}{6} = \frac{1+2x}{6} - \frac{1-x}{2}$$

- $x$  is Greater than 3! Use the number 999 to open the padlock

 **Go to paragraph 17.**

- $x$  is less than 3! Use the number 001 to open the padlock

 **Go to paragraph 4.**

- $x$  is equal to 3! Use the number 003 to open the padlock

 **Go to paragraph 39.**

33

 **Go to paragraph 23.**

34




She still doesn't seem convinced, but fortunately, one of her parrots decides to come to your aid by shouting, "36! 9!" That was the right answer... Hinting at you with a smile, the woman whispers in your ear: "If you really want to know something, don't waste your time and go to the Magdalena Restaurant!" So, you decide to go there.

 **Go to paragraph 41.**

35

Maybe there is some mistake... The man comes back to you. He says nothing but goes to the desk and lights a lamp. Its light illuminates a well-defined circular area on the desktop. Incredible, in the dust that has accumulated over time, someone has left a message still clearly visible:

$$\frac{x}{2} + \frac{x+1}{7} = x - 2$$

- The solution is greater than 5 and less than 7.  
 **Go to paragraph 22.**
- The solution is greater than 1 and less than 6.  
 **Go to paragraph 37.**
- The solution is greater than 6.  
 **Go to paragraph 42.**

36

 **Go to paragraph 9.**

37

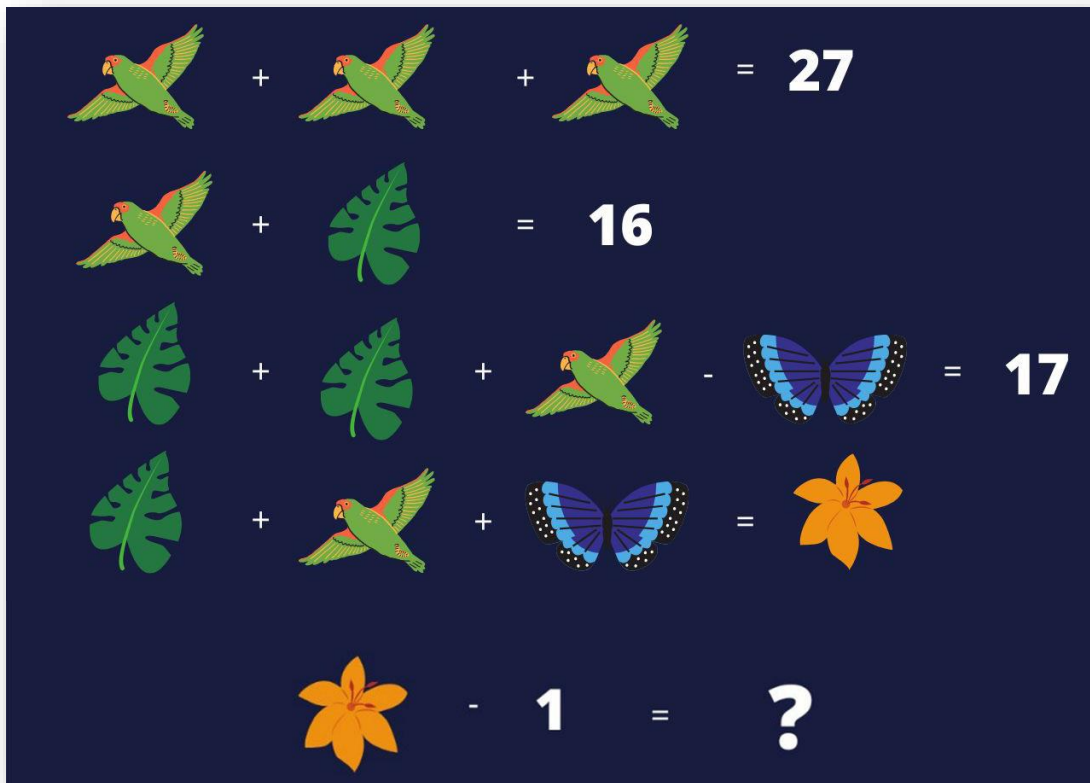
The man returns impatiently: "I have to close the restaurant; my work shift is over. The right answer is the first, but hurry up, in 1 minute I will be forced to let you out!" You accept his help, and you thank him with a smile.

 **Go to paragraph 22.**

38

## THE STRANGE CANVAS

Some symbols are represented, as follows:



- The solution is greater than 19 and less than 21  
 >>> → Go to paragraph 26.
- The solution is greater than 10 and less than 20  
 >>> → Go to paragraph 9.
- The solution is greater than 21 and less than 27  
 >>> → Go to paragraph 36.

39

The solution,  $x = 3$ , allows you to open the padlock. You raise the rusty and heavy shutter, which had probably been closed for years. You expected to find work tools and boxes, but instead, the shed is totally empty. Scour the walls in search of some writing or engraving in the wall, but nothing. You look around disappointed, you expected something more from this adventure. Has someone arrived before you?

A noise behind you makes you jump... but it is just a mouse. It hurriedly runs throughout the shed, to slip into a small crack in the wall. But what catches your attention is one of the tiles that, under the weight of the mouse, produced a slight noise. You go check and you find that the tile is not glued to the floor like the others. Here's your next clue! Dora in fact left on the back of the tile a key with a red label "Suite - Tropical Hotel". It seems clear that your next destination is there.

→ **Go to paragraph 24.**

40

→ **Go to paragraph 5.**



41

## MAGDALENA RESTAURANT



Photo by [Andres Urena](#) on [Unsplash](#)

Here you are at Magdalena, a very characteristic restaurant that offers traditional dishes. On the menu, however, there is no piranha soup. You ask for the chef and after waiting quite a few minutes, a man comes out of the kitchen, a man so big and tall that you imagine his movements around the stove would be complicated. He is not very happy that he's been turned away from his kitchen, but when you ask him about piranha soup, his frown gives way to amazement. He leaves for a few minutes without giving you any explanation and when he comes back, he brings you a yellow envelope sealed with sealing wax. "DT" are the letters imprinted on the seal: Dora Tei! Eagerly, you open the envelope and find something unexpected...

 **Go to paragraph 2.**

42

➤➤➤ → Go to paragraph 37.

43

## THE KINDERGARTEN



Photo by [Bo Lockwood](#) on [Pixabay](#)

The kindergarten is located in a building right by M Quispe's house. The children and teachers play and teach peacefully. There are many lovely objects made from products of nature: woods, leaves, and flowers. The most elaborate one is a very pretty dreamcatcher, placed near the window. It is made of coloured and multiform stones and seems to reflect the sun's rays

## The Beak of the Toucan

creating plays of light. The wind makes the rocks move and one of the reflected rays hits your gaze. It is at that moment that you notice one of the gems of the dreamcatcher, which more than a gem looks just like ... the beak of a toucan! You get closer: it is an iridescent gem of extraordinary beauty. Its value must be priceless, and it is located right now in one of the humblest places you have ever visited. It is amazing how Dora has been able to keep it safe over the years. The children of Isla San Francisco were its unwitting caretakers. You know that its right home should be a museum where everyone can admire that miracle of nature, but you feel that those children could somehow benefit from that precious amulet. What to do?

You have to make your decision in a short time. Write down your choice:

.....  
.....  
.....

  **Then go to paragraph 25.**



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