



## Count your pennies Numbers and Operations – Practice

### Learning Objectives

To reinforce knowledge about money and the relationship between cents and the money unit through a fictitious money system consisting of cents and sols: 1 sol equals 100 cents.

### Short Description

In each page, the pupils have to put a certain amount of money up to 10 sols in a container using coins of 1, 5, 10, 20 and 50 cents, of 1 and 5 sols. The pupils are given feedback on their answer and in the first four pages, can correct their answer once or twice. In the first pages, pupils can see the coins in the glass and take coins out of the glass to correct their answer. In the last pages they must put coins in an opaque container and the coins cannot be taken out.

### Use in Classroom

Individual use, one pupil at a computer

### Contribution of 1 2 3... Cabri

**Autonomy, Interactivity, Randomly generated data**

Feedback is given to the pupils in two steps:

1- the answer is validated or invalidated, and the pupils can correct the amount in the glass;

2- if the second answer is wrong, the amount of money put by the pupils is displayed and is updated every time money is put in the glass. The pupils can control step by step the changes of the amount of money in the glass or in the container.

It is possible to redo the activity books with different numbers, the numbers being generated randomly.

### When and how to use?

This activity book can be used after introducing money. It deals with fictitious money but based on the widespread system of a money unit subdivided into cents.

It is very useful for pupils who still have difficulties in converting money amounts in cents into amounts in units and cents, or in adding mentally the value of coins. It can be repeated since the numbers are generated randomly and pupils practice with different data for each use of the activity book.

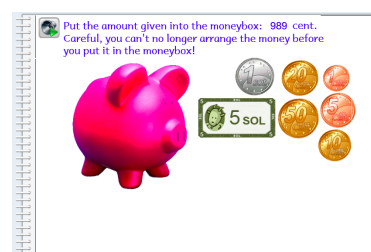
## Some snapshots



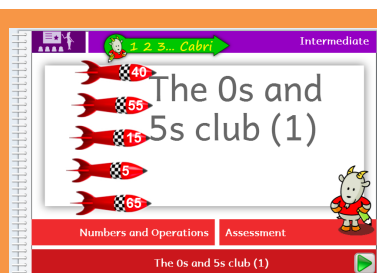
Put the amount of money given in sols and cents in a glass.



Put the amount of money given in cents in a glass.



Put the amount of money given in cents in the opaque container.



## The 0s and 5s club (1)

### Numbers and Operations – Assessment

#### Objectives

Assess pupils' skills in quick mental arithmetic using differences of two numbers between 100 and 900 ending in 0 or 5. Two strategies are very efficient in this mental calculation:

- Set aside the number of units common to both numbers and reduce the calculation to a difference of two two-digit numbers: for example,  $815-795 = 810-790$  or tens  $81-79$ ;
- Transform the calculation into a difference between two numbers ending with the same number of units, for example,  $110-75 = (110-70) - 5$ .

The differences to calculate are given in the form of missing number additive sentences.

#### Short Description

The calculation is presented in an entertaining way: the numbers are on the sides of rockets, which pass by on the page and may disappear if the pupil is too slow. The pupil is therefore encouraged to perform quick mental arithmetic. The overall time is given in the report and the pupil may practice working faster. In order not to complicate the calculations further, and above all to employ the strategies mentioned above, the differences in the tens digit of two numbers are all between 2 and 9.

#### Use in Classroom

Individual use, one pupil at a computer

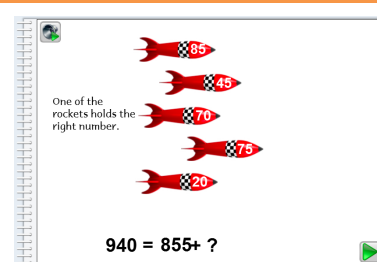
#### Contribution of 1 2 3... Cabri

Entertainment, Autonomy, Interactivity, Randomly generated data  
The activity book presents the tasks as a game. The pupil can redo the activity book as the numbers on the rockets and in the sentence are randomly generated. The activity book is very useful for pupils with difficulties in mental subtractions of 3 digits numbers ending in 0 or 5. A final report provides the number of right answers and wrong answers.

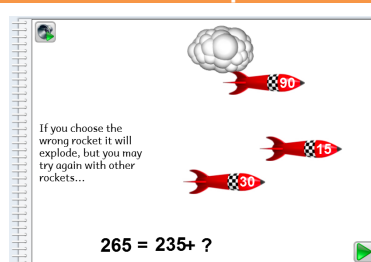
#### When and how to use?

The activity book can be repeated several times in the year in order to assess the mental calculation abilities of pupils but also in order to offer practice to the pupils. On the final page, the pupils can also change the speed of the rockets for a next use. They can thus improve their speed in mental calculation. After the first use of the activity book by all pupils, the teacher can organize a class discussion about the efficient calculation strategies.

### Some snapshots



Rockets holding numbers are passing by. A sentence with a missing number is displayed.



The rocket holding the missing number must be clicked before it disappears. In case of clicking a wrong rocket, the rocket explodes.



In case of clicking the right rocket, the rocket lands.



## The slab from all sides

### Geometry and Measurement – Discovery

#### Learning Objectives

Introduction to the mathematical slab and understanding of some of its characteristics: height, face, and volume. Developing the ability to distinguish a slab from other solids such as a cube, cylinder, prism and sphere.

#### Short Description

The activity book helps the pupils become aware of the characteristics of a slab in the mathematical sense. A slide show shows paved streets. Then the pupils must pave a street following a particular pattern of colours. After they learn to recognize a slab by changing the size of each edge, the pupils must identify slabs among a group of solids. They must compare the heights of several slabs. They must count the number of cubes contained in 2 slabs.

#### Use in Classroom

Two pupils at a computer or classroom use on Interactive Whiteboard

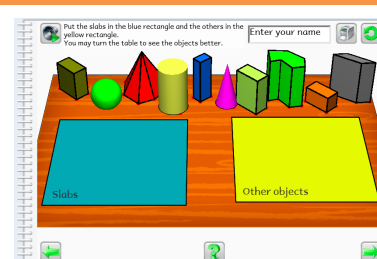
#### Contribution of 1 2 3... Cabri

**Dynamic representations, Manipulation in 3D, Interactivity**  
Manipulation of the objects and possibility of changing the perspective on the objects by turning the table or tilting it.  
Possibility of deforming the objects without changing their geometric invariants. The pupils can thus become aware of the geometric invariants of a slab.  
Feedback validating or invalidating the answers of the pupils and in some pages giving them the number of right and wrong answers.  
Possibility of reinitializing the pages and repeating them for pupils encountering great difficulties with the tasks.

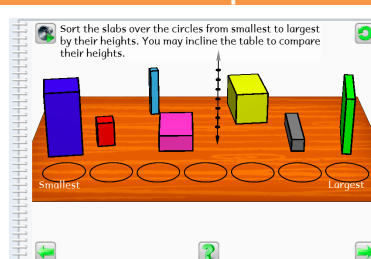
#### When and how to use?

This activity book can be used after introducing the cube and the slab with manipulatives.  
It lends itself well to use in class with an Interactive Whiteboard in order to stimulate exchanges among pupils. It can also be given to pupils working in pairs at a computer.  
It helps the teacher to establish a link between the slab in the real world and its mathematical model: a slide show presents slabs in the real world then a series of tasks helps pupils abstract the mathematical properties of a slab.

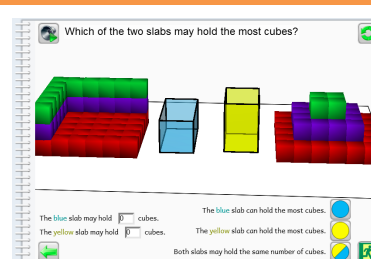
### Some snapshots



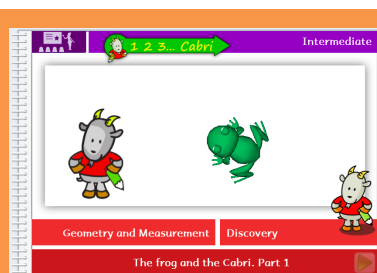
Identify the slabs among the objects.



Sort the slabs from smallest to largest by their heights.



Write down the number of cubes that each slab may hold.



## The frog and the Cabri Geometry and Measurement – Discovery

### Learning Objectives

To develop a structure of a grid. To develop spatial and numerical memory of moves on a grid. To develop systematic trial and error strategies in exploring the moves in a maze on a grid.

### Short Description

In each page, the pupils have to move on a grid a frog by means of arrows (to the left, to the right, upwards, downwards) so that it reaches the Cabri. At each click on one of the arrows the frog does a jump to the next step in the direction of the arrow.

The first pages familiarise the pupils with the interface. On the following pages, a cloud covers part of the maze. As the page appears, the cloud flashes for a few seconds, this allows the pupil to see the maze and to remember the configuration. When the frog hits a wall, feedback is provided and the frog must come back to the entrance of the maze. On the last page, the cloud which covers the maze, does not flash.

### Use in Classroom

One or two pupils at a computer

### Contribution of 1 2 3... Cabri

#### Dynamic problem, Interactivity, Autonomy

The computer makes it possible to pose the problem in a dynamic way.

The view on the grid is changing over time, either partial or total.

Feedback is given to the pupil every time the frog hits a wall. The game is similar to a navy battle game in which the pupil plays against the computer. The solving time varies greatly from one pupil to another one. Pupils can progress across the tasks at their pace.

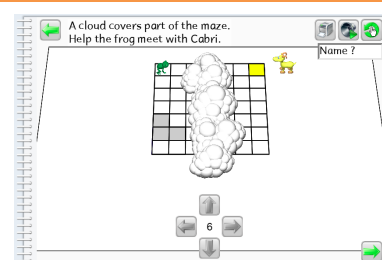
### When and how to use?

Each page with a cloud hiding part of the maze is a real problem and solving it requires time. Because of this complexity, the activity book can be used partially in several steps, the first 6 pages a first time, pages 7 to 9 a second time, and the last page a third time. The activity book can be repeated, since it is impossible to memorize the location of the walls!

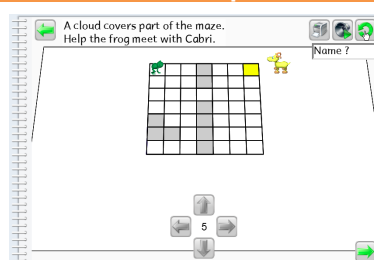
The last page provides a good opportunity to think about solving a problem in which one has to organize tries and make inferences from the tries. It is impossible to solve without representing the tries on a drawing of the grid and without a method in the choice of the tries.

Some pupils may be unable to organize a search in the pages with clouds. The teacher can organize an intermediate class discussion about possible strategies.

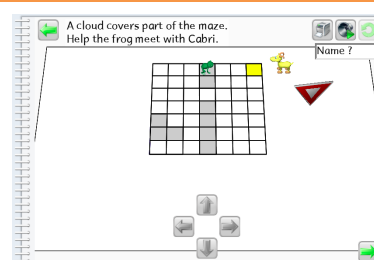
## Some snapshots



During 8 seconds, a cloud covers the maze on ...



... and off. Then it permanently covers the maze.



Feedback when the frog hits a wall.

