

# Organised Counting

## Lesson objectives

- I can make lists, charts and tree diagrams to organise counting

1.1

Lesson objectives

Teachers' notes

Lesson notes

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## Warm Up

On a TV game show, a contestant must pick one of three doors, labelled 1, 2, and 3. Behind each door are two boxes to choose from. Boxes A and B are behind Door 1, boxes C and D are behind Door 2, and boxes E and F are behind Door 3.

1. Illustrate all the possible outcomes in each of the following ways:
  - a) a chart
  - b) a set of ordered pairs
2. How many possible outcomes are there?
3. Draw and describe what a tree diagram would look like for this situation.

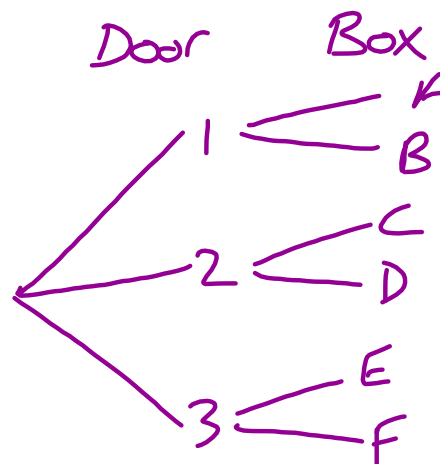
	A	B	C	D	E	F
1	✓	✓				
2			✓	✓		
3					✓	✓

1A, 1B, 2C, 2D, 3E, 3F

⇒ 6 outcomes

A store is offering a promotion on cell phones. Three different models are on sale. Each model is available in two different colours. How many different choices are available?

3 models  
2 colours  
⇒  $3 \times 2 = 6$  choices

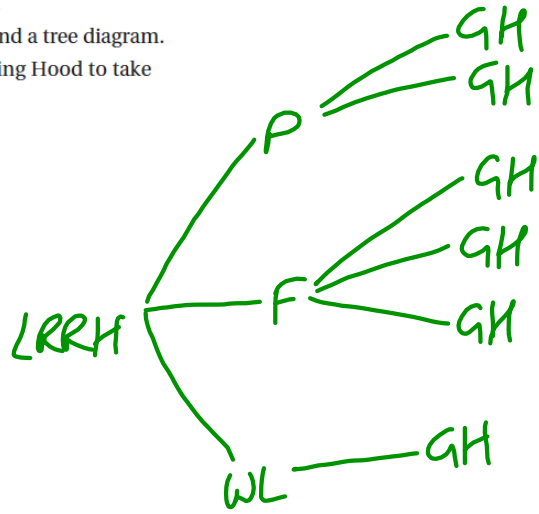
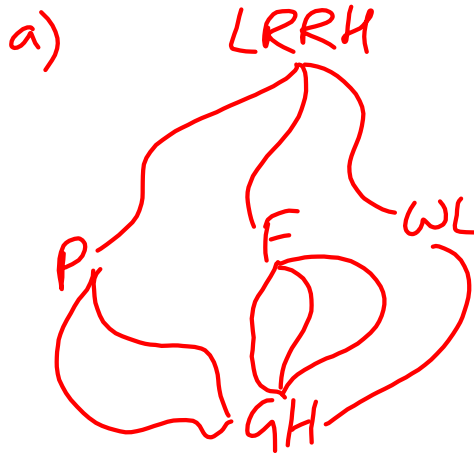


**Example 1**

**Illustrating Possible Outcomes**

Little Red Riding Hood knows there are three paths from her house: one going to a pond, one going to a field, and one going to the wolf's lair. From the pond, there are two paths to Grandma's house. From the field, there are three paths, and from the wolf's lair there is one path.

- a) Illustrate Little Red Riding Hood's choices with a map and a tree diagram.
- b) How many different routes are there for Little Red Riding Hood to take to Grandma's house?

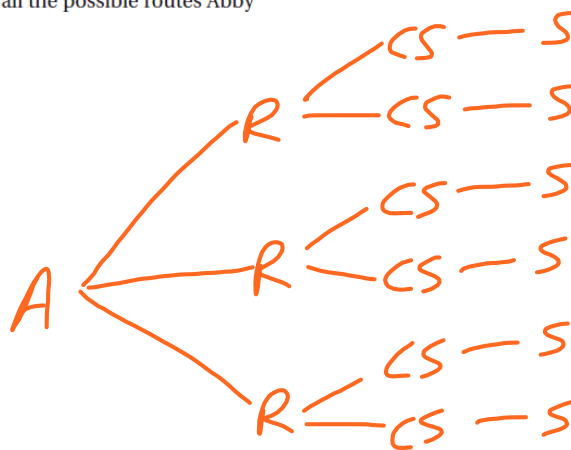
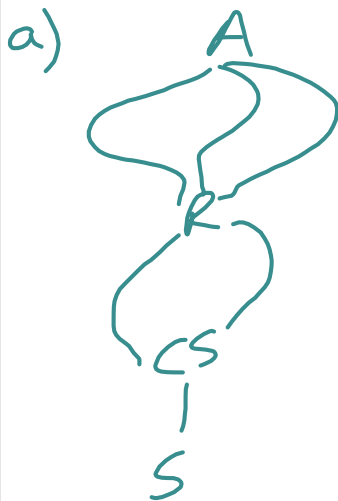


b) There 6 different routes

**Your Turn**

Abby makes two stops on her way to school. She stops to pick up her friend Regan, and then stops to get breakfast at a coffee shop. There are three routes from her house to Regan's house, and two routes from Regan's house to the coffee shop. There is one route between the coffee shop and school.

- a) Make a map and a tree diagram illustrating all the possible routes Abby can take to school.
- b) How many possible routes are there?



b) There are 6 different routes

**Example 2**

**Illustrating Replacement and Non-Replacement of Items**

A jar contains a red, a blue, and a yellow ball. A student removes three balls one after the other. Draw a tree diagram to illustrate and count the number of outcomes. Highlight the path illustrating (yellow, red, blue) if

a) the balls are replaced after each selection.  
 b) the balls are not replaced after each selection.

a)

27 outcomes

**Example 2**

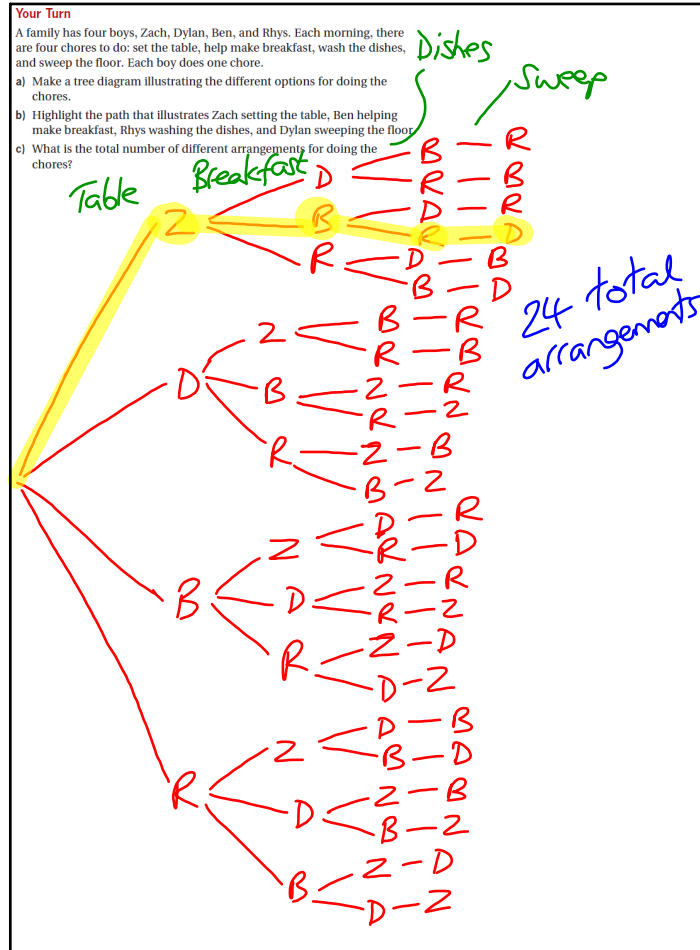
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b)

6 outcomes



## Homework

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