ADAPTABLE TRAVEL'S

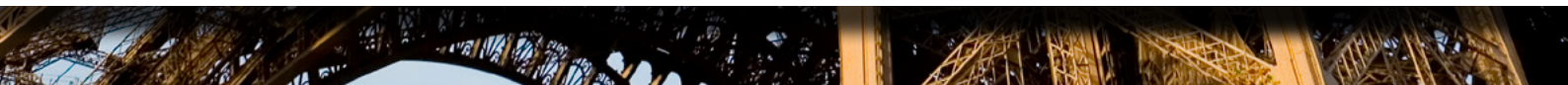
PROJECT MATHS

PARIS & DISNEYLAND

STUDENT WORKBOOK

ADAPTABLE TRAVEL

Educate • Inspire • Travel



CONTENTS

CONVERSIONS (KS4)

ACTIVITY 1

Fred went on holiday to France.
He changed £475 to Euros.

£1 = 1.57 Euros.

A) Change £475 to Euros.

In France, Fred went to a festival.
There were 650 people at the festival.
16% of the people at the festival were British.

B) Work out 16% of 650

The table can be used to convert between Euros (€) and Pounds (£).

Euros (€)	Pounds (£)
0.10	0.08
0.20	0.16
0.50	0.40
1	0.80
2	1.60
3	2.40
4	3.20

A) Change €3 to pounds.

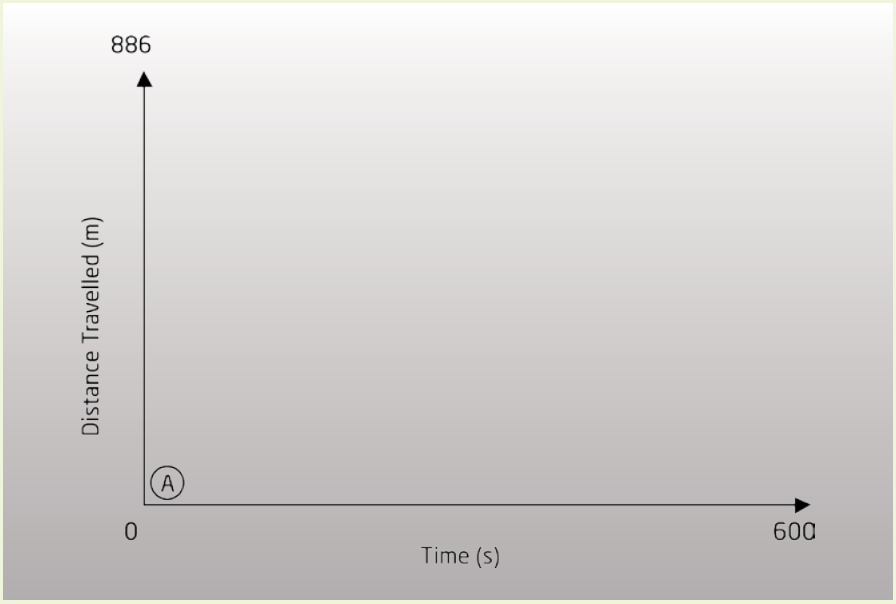
C) Change £1 to euros.

B) Change €2.50 to pounds

SPEED, DISTANCE, TIME (KS4)
DISTANCE-TIME GRAPHS

ACTIVITY 1

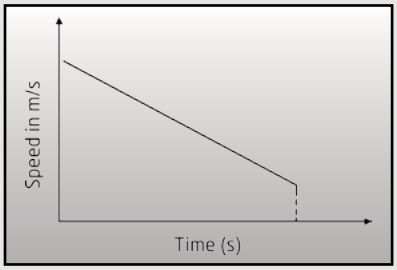
Pirates of the Caribbean is one of Europe's tallest log flumes. It is 26 metres high and has a track length of 886 metres. Boats are taken up a ramp before descending down a chute into a trough of water, before travelling up another ramp and descending down another chute. Using the axes below, sketch a distance-time graph for Pirates of the Caribbean. (Point A is where the ride begins.) Experience the ride to get a better feeling for the ride. Your graph should show total distance travelled by the ride, not distance from the ground.



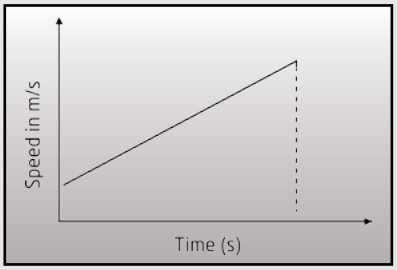
SCATTER DIAGRAMS (GRAPHS)

The gradient of a speed-time graph gives the acceleration of an object; the steeper the gradient, the greater the rate of change in speed.

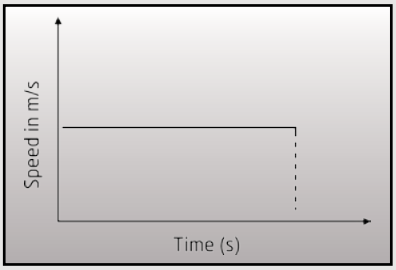
This graph shows an object slowing down
(constant deceleration)



This graph shows an object speeding up
(constant acceleration)



This graph shows an object moving at a constant speed
(zero acceleration)



PERCENTAGES (KS4)
PERCENTAGE INCREASE & DECREASE

ACTIVITY 1

The number of riders on the Big Thunder Mountain ride in 2005 was 384,000. This is 28% more than in 2001.

1) How many riders used Big Thunder Mountain in 2001?

If the number of riders was growing each year from 2005 onwards, at 5% per year:

2) What is the projected number of riders in 2008?

3) What would the projected number of riders be in 2009 if there was a 3% decrease?

4) Using the table below, calculate the percentage increase and decrease in the number of riders on Big Thunder Mountain each year to the nearest 1%:

Year	Number of Riders	% Increase / Decrease from Previous Year
2005	380,000	5%
2006	399,00	
2007	406,980	
2008	366,282	
2009	406,573	

*Figures for illustration purposes only

PERCENTAGE INCREASE & DECREASE IN TICKET PRICES

Disney attracts more people during sunny weather. To try and counteract falling numbers in bad weather, Disney changes the cost of tickets according to the weather.
On the first day, the adult price of a ticket is £38.

1) Work out the daily percentage change Disney used to set ticket prices to the nearest 1%, to the previous day.

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
Percentage Change	-	5%					
Ticket Price	£38	£39.90	£41.10	£40.28	£36.25	£39.15	£39.54

CITÉ DES SCIENCE: TURBULENT FOUNTAIN

EXHIBIT 6: THE TURBULENT FOUNTAIN

A) Observe the elements of the fountain and the movements of the wheel:

i) The flow of water is constant

True ☐ False ☐

ii) The holes in the cups have different sizes

True ☐ False ☐

iii) On the side, we can see the system's motor

True ☐ False ☐

iv) The movement of the wheel depends on how the cup fills

True ☐ False ☐

v) The wheel can stop for a while or turn the other way round

True ☐ False ☐

vi) The wheel has a periodical movement

True ☐ False ☐

B) What will be the rotating direction of the wheel in 3 minutes? Tick as appropriate:

i) The same ☐

ii) No one can predict it ☐

iii) The opposite direction ☐

iv) The wheel will have stopped ☐

C) On a computer, one can program all the calculations which describe the functioning of the system:

True ☐ False ☐

D) Can the computer predict how the wheel will turn? Tick as appropriate

i) No, not at all ☐

ii) Yes, completely ☐

iii) Not beyond 2 minutes ☐

E) What was the speciality of E.Lorenz who in 1963 found the first mathematical pattern of chaotic behaviour?

In this field too, we speak of chaotic system "sensitive to initial conditions": a minute disturbance at the start can bring enormous forecast errors.

Points to consider: Why do you think the word correct is placed inside quotation marks?

Pick the correct statement below:

A) "correct" is a value judgement and therefore open to debate because values vary ☐

B) "correct" today is "incorrect" tomorrow ☐

C) It may be "correct" in particular but incorrect in general ☐

D) It may be partially correct but not fully correct ☐

E) If my teacher says its "correct" that's good enough for me ☐

F) If I got something "correct" in maths I'd be very surprised ☐