

WORKSHEETS
Mental Maths
&
Problem Solving

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18th December 2009

WS1

Sequences Must

What comes next?

State whether the sequences are ascending or descending order.

	Ascending or descending		Predict
20, 31, 42, ____, ____, ____, ____, ____	Ascending	+11	97 Yes/No
144, 140, 136 ____, ____, ____, ____, ____	_____		120 Yes/ No
-5, 0, 5, ____, ____, ____, ____, ____	_____		26 Yes/ No
26, 16, 6, ____, ____, ____, ____, ____	_____		-26 Yes/ No
9, 15, 21, ____, ____, ____, ____, ____	_____		35 Yes/ No
91, 102, 113, ____, ____, ____, ____, ____	_____		139 Yes/ No
92, 86, 80, ____, ____, ____, ____, ____	_____		74 Yes/ No
68, 60, ____, ____, ____, ____, ____	_____		44 Yes/ No
31, 33, ____, 37, ____, ____, ____, ____	_____		51 Yes/ No
41, 44, ____, 50, ____, ____, ____, ____	_____		122 Yes/ No
50, ____, ____, 35, ____, ____, ____, ____	_____		20 Yes/ No
____, 6, 11, ____, ____, ____, ____, ____	_____		163 Yes/ No
Make your own: Add 5 ____/____/____/____/____/____/____/____	_____		Yes/ No
Multiply by 2 ____/____/____/____/____/____/____/____	_____		Yes/ No

WS2

Sequences Can

What comes next?

State whether the sequences are ascending or descending order.

Ascending/descending Pattern

200, 310, 420, _____, _____, _____, _____, _____, _____,	ascending _____	+11
144, 140, 136 _____, _____, _____, _____, _____, _____,	_____	
-50, 0, 50, _____, _____, _____, _____, _____, _____,	_____	
260, 160, 60, _____, _____, _____, _____, _____, _____,	_____	
90, 150, 210, _____, _____, _____, _____, _____, _____,	_____	
920, 860, 800, _____, _____, _____, _____, _____, _____,	_____	
310, 330, _____, 370, _____, _____, _____, _____, _____,	_____	
410, 440, _____, 500, _____, _____, _____, _____, _____,	_____	
50, _____, _____, 35, _____, _____, _____, _____, _____,	_____	
<p>Make your own: Add 1 more each time N+1 _____, _____, _____, _____, _____, _____, _____, _____,</p> <p>Explain the pattern: _____</p>	_____	

WS3

Sequences Could

What comes next?

State whether the sequences are ascending or descending order.

Ascending/descending Predict

___ , 40 , 80 , 160 , ___ , ___ , ___ , ___ , ___ ,	AS	+11	1280	Yes/No
Count back in 9's from 99 to 9 99 _____ 9	_____		63	Yes/No
20 , ___ , ___ , 80 , ___ , ___ , ___ , ___ , ___	_____		21	Yes/No
440 , ___ , 400 , ___ , ___ , ___ , ___ , 300 , ___ ,	_____		200	Yes/No
500 , ___ , ___ , 350 , ___ , ___ , ___ , ___ , 100 , ___ , 0	_____		50	Yes/No
20 , ___ , 220 , ___ , ___ , ___ , ___ , 720 , ___	_____		320	Yes/No
Make up some of your own _____	_____			Yes/No
10 , 40 , 90 , ___ , 250 , ___ , 490 , ___ 810 , ___	_____		910	Yes/No
10 , ___ , 60 , 100 , 150 , ___ , 280 , ___ , 450 , ___	_____		500	Yes/No
234 , 334 , ___ , 534 , ___ , 734 , ___ , ___	_____		634	Yes/No
500 , ___ , ___ , 350 , ___ , ___ , ___ , ___ ,	_____		101	Yes/No
Make your own: N+2 _____	_____			Yes/No
Explain your pattern: _____	_____			

INCREASE

MINUS

TAKEN FROM

TIMES

HOW MUCH LESS?

ADD

DIFFERENCE BETWEEN

REDUCE

SHARE EQUALLY

SPLIT

MORE

LOTS OF

FEWER

HOW MANY ARE LEFT?

TOGETHER

SUM

DECREASE

PRODUCT

DIVIDED

WHAT IS THE SUM?

HOW MANY GROUPS?

MULTIPLIED BY

GROUPS OF

WHAT IS THE SUM

SHARE

SUBTRACT

AND

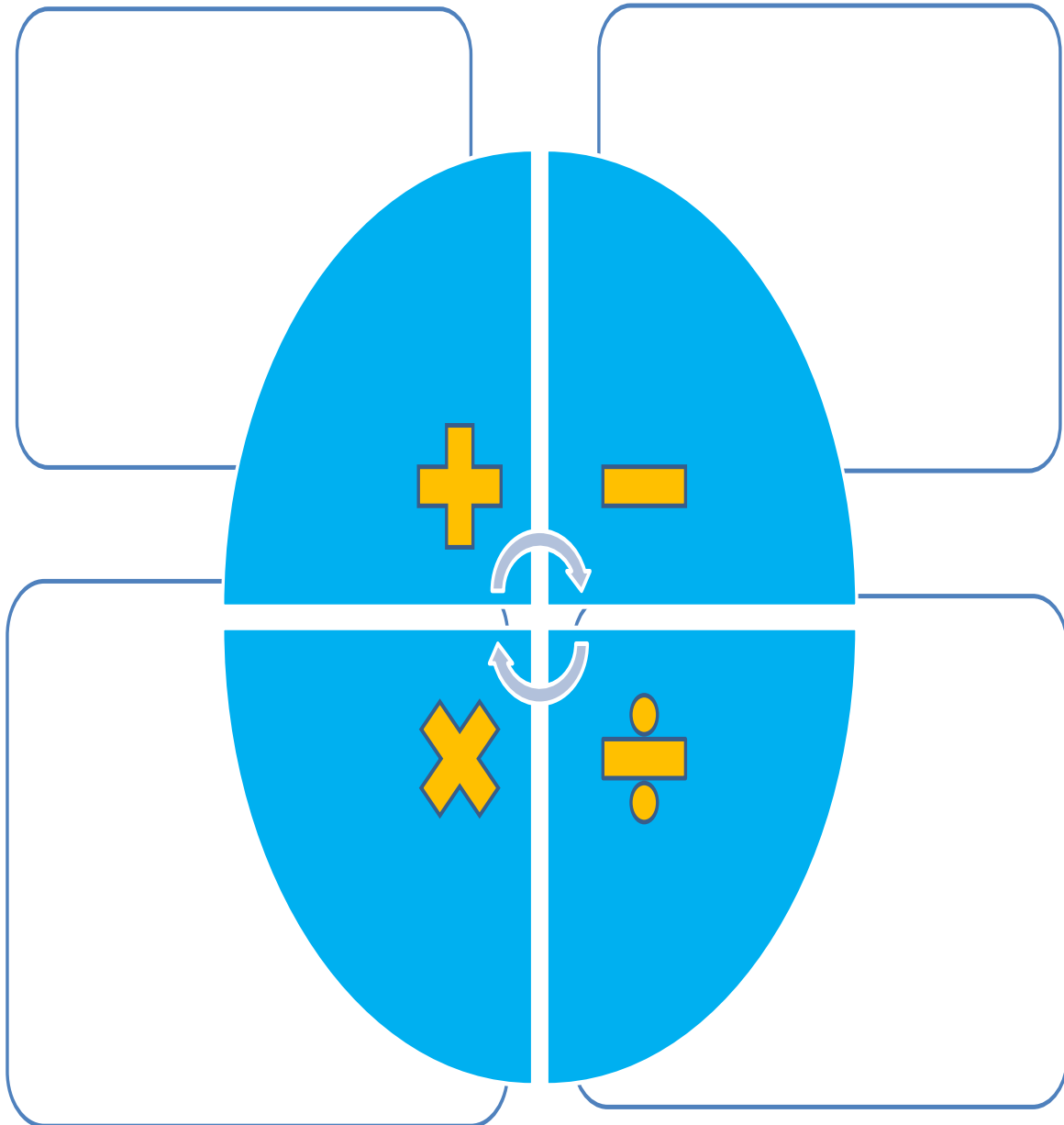
PLUS

GROUP



WS 4.1

Complete the following diagram sticking the words given:



WS 5

Listen to the problems and complete these sets according to the operations:

Set 1

--	--	--	--

Set 2

--	--	--	--

Set 3

--	--	--	--

Set 4

--	--	--	--

Set 1

--	--	--	--

Set 2

--	--	--	--

Set 3

--	--	--	--

Set 4

--	--	--	--

CAN

WS6



Answer as many questions as you can in one minute:

a) $34 \times 100 =$	ñ) $924 \div 100 =$
b) $880 \div 10 =$	o) $233 \times 100 =$
c) $758 \times 100 =$	p) $320 \div 10 =$
d) $88 \div 100 =$	q) $592 \times 100 =$
e) $984 \times 100 =$	r) $34 \div 100 =$
f) $360 \div 10 =$	s) $428 \times 10 =$
g) $860 \times 10 =$	t) $231 \div 100 =$
h) $251 \div 100 =$	u) $798 \times 10 =$
i) $762 \times 100 =$	v) $321 \div 100 =$
j) $880 \div 10 =$	w) $900 \times 10 =$
k) $542 \times 10 =$	x) $900 \div 100 =$
l) $88 \div 100 =$	y) $130 \times 10 =$
m) $321 \times 100 =$	z) $541 \times 100 =$
n) $569 \div 10 =$	$91 \div 100 =$

WS6.1



Could

Answer as many questions as you can in one minute:

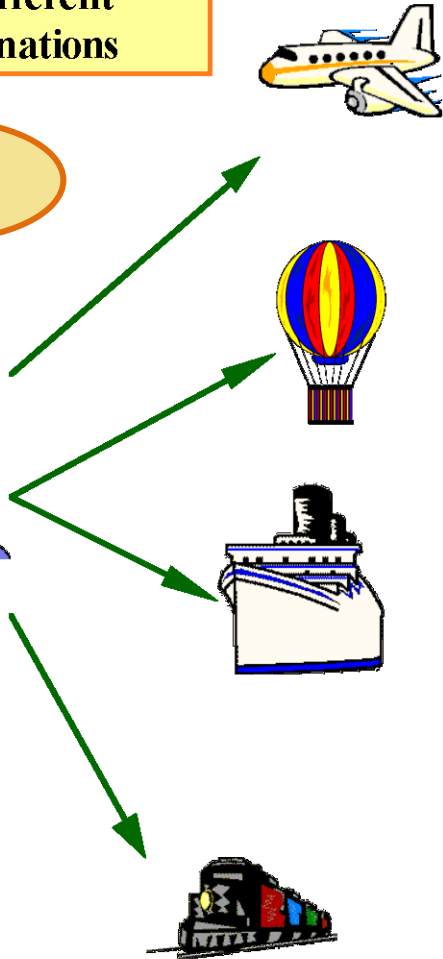
a) $34 \times \quad = 0.34$	ñ) $924 \div 100 =$
b) $\quad \div 10 = 88$	o) $233 \times \quad = 23300$
c) $758 \quad _ \quad 100 = 7.58$	p) $\quad \div 10 = 32$
d) $88 \div \quad = 0.88$	q) $592 \times 100 =$
e) $984 \times \quad = 98400$	r) $34 \div \quad = 0.34$
f) $360 \div 10 =$	s) $428 \times 10 =$
g) $\quad \times 10 = 8600$	t) $\quad \div 100 = 2.31$
h) $251 \div 100 =$	u) $798 \times 10 =$
i) $\quad \times 100 = 76200$	v) $321 \div \quad = 3.21$
j) $880 \div \quad = 88$	w) $900 \times 10 =$
k) $542 \times 10 =$	x) $\quad \div 100 = 9$
l) $88 \div \quad = 0.88$	y) $130 \times 10 =$
m) $\quad \times 100 = 3.21$	z) $541 \times 100 =$
n) $\quad \div 10 = 56.9$	$91 \div 100 =$

Use the tree diagram to make a list of all the different combinations

WS 7.1



Galicia



Use the tree diagram
to make a list of all
the different
combinations

WS 7.2



Castilla
y Leon

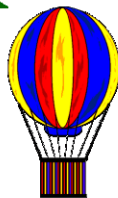
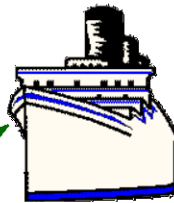


Rebeca Muñoz San Millán

Use the tree diagram to make a list of all the different combinations

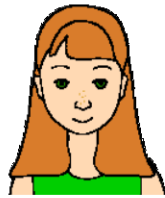
WS 7.3

Castilla la Mancha

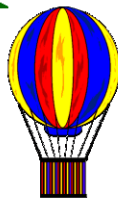
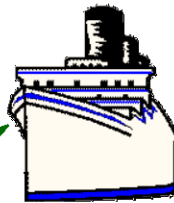


Use the tree diagram to make a list of all the different combinations

WS 7.4

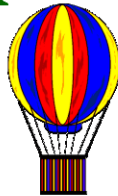
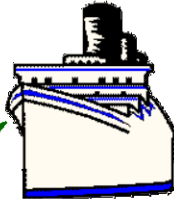


Basque Country



Use the tree diagram to make a list of all the different combinations

WS 7.5

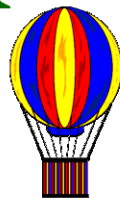
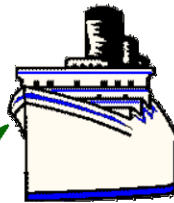


Use the tree diagram to make a list of all the different combinations

WS 7.6



Andaluçia

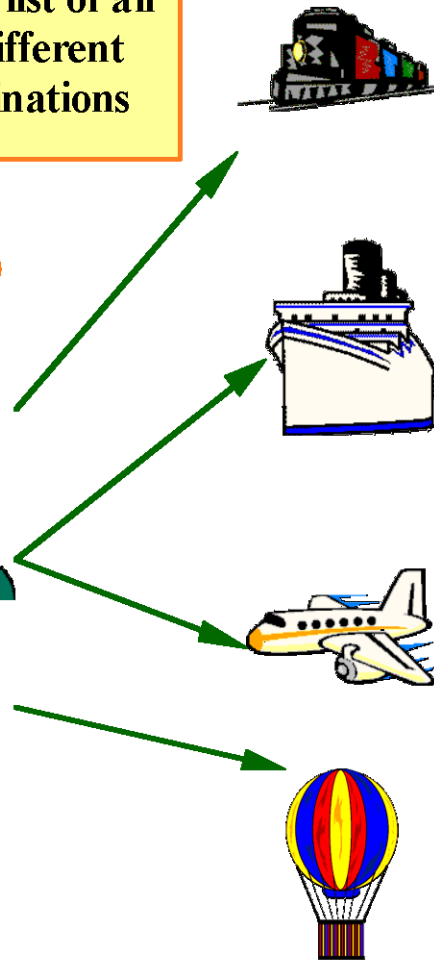


Use the tree diagram to make a list of all the different combinations

WS 7.7



Madrid



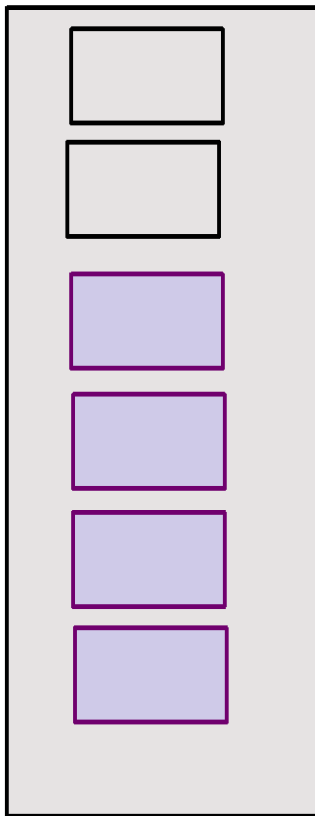


You arrive at the airport after landing and you find three opened suitcases. All the clothes are spread on the floor. Redo the suitcase again and help Luke, Paul and Sarah to find their clothes.

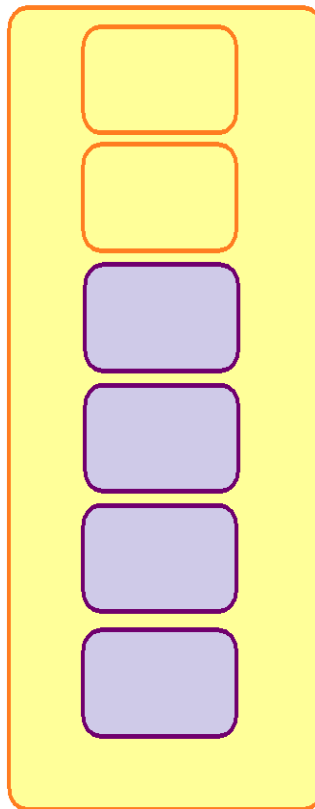
Attention! Make sure the suitcases are not overweight!



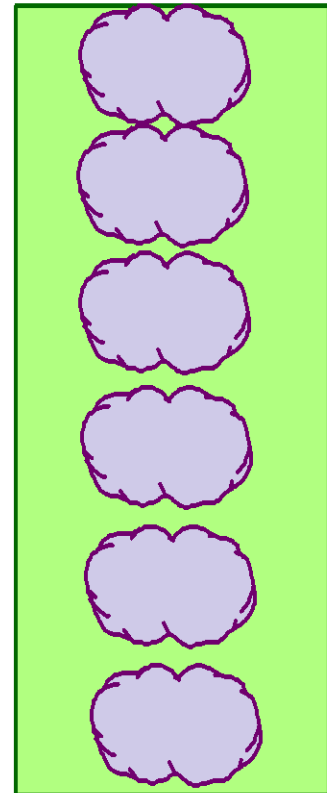
Luke: "this is my suitcase. It weighs 900 g. I love blue!"



Paul: "Mine weighs 870g"



"Sarah: I hate pink colours"



WS8

WS 9

Material

- 1 traditional two-pan balance



- Two solids made of different material

Procedure

- Hypothesis:
 - Does one object feel heavier/lighter than the other object?
-

- Measuring:
 - 1.-Place each object on one pan
 - 2.-Add standard weights to the other pan until the beam is balance

- Weight of _____ = _____ g
- Weight of _____ = _____ g

Conclusion

- What do you have observed?

- Has the hypothesis come true?

- If we do the experiment again which material can we use?

L.S. 6 Comparing, predicting outcomes

I think	this object is	heavier lighter	than	the other one
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I can use	iron, cork, plastic, wood, cloth, cotton
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WS 10

Use base ten blocks and represent the numbers and subtract.

Hundreds	Tens	Units

a)

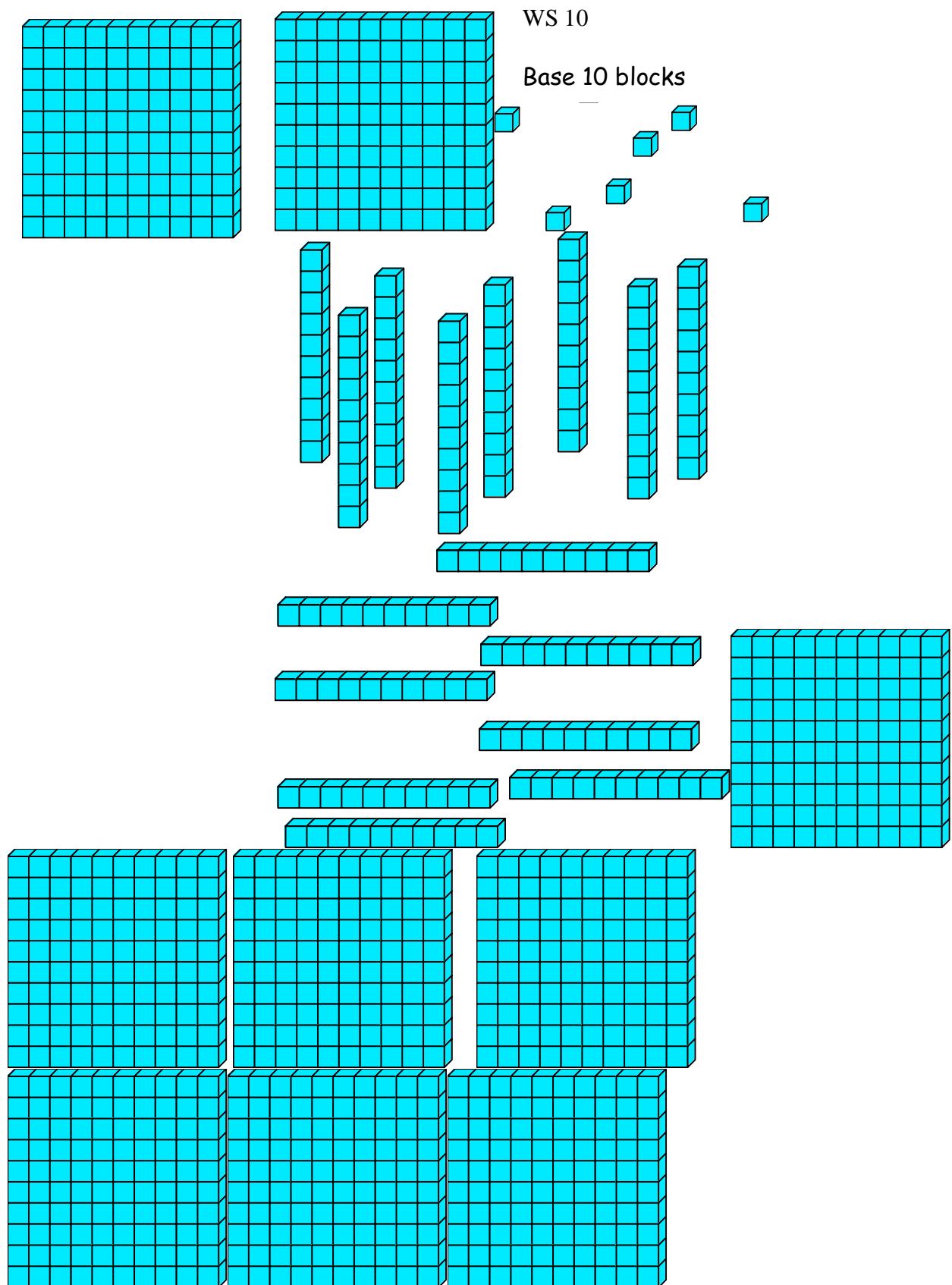
$$\begin{array}{r} 468 \\ - 105 \\ \hline \square \end{array}$$

b)

$$\begin{array}{r} 352 \\ - 237 \\ \hline \square \end{array}$$

c)

$$\begin{array}{r} 325 \\ - 228 \\ \hline \square \end{array}$$



WS11

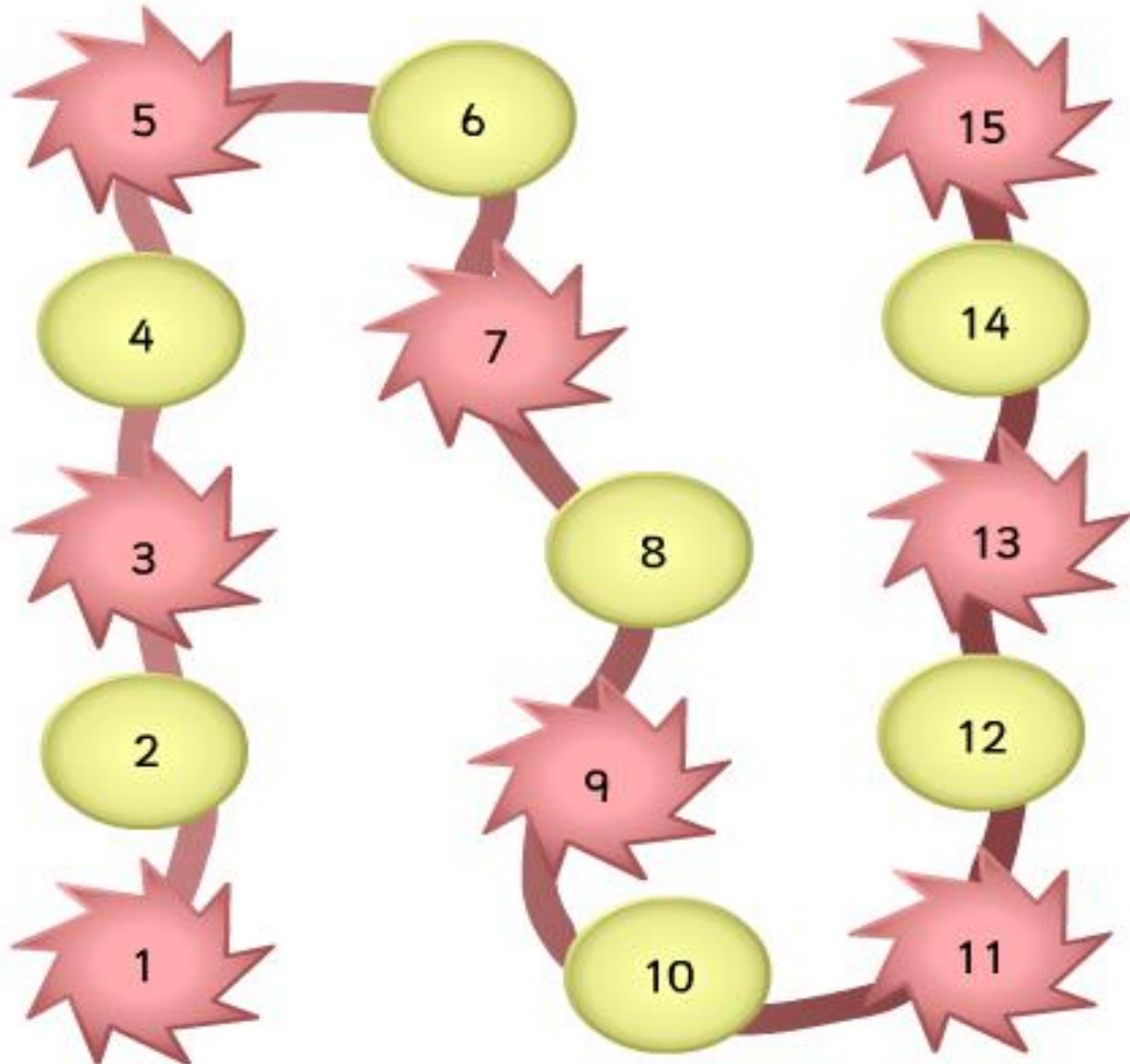


Location	Services	Rooms	Food	Other	Total

Name _____

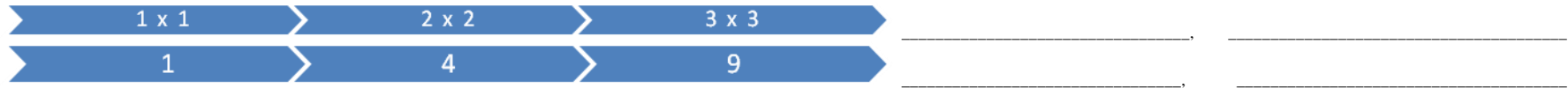
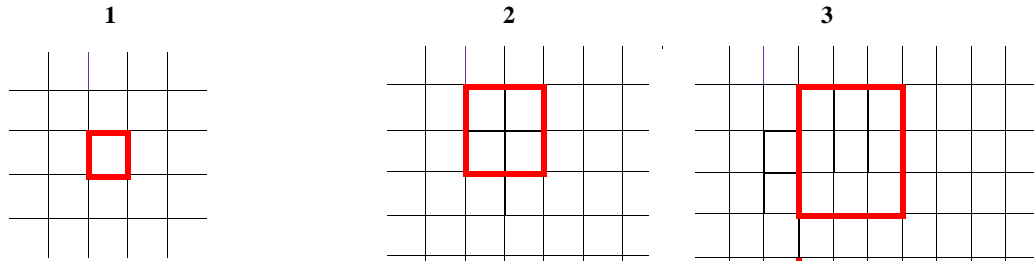
Date _____

Complete this number line.

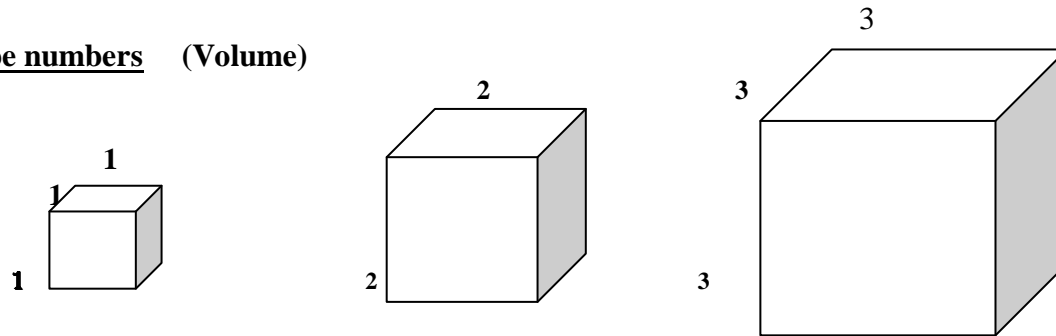


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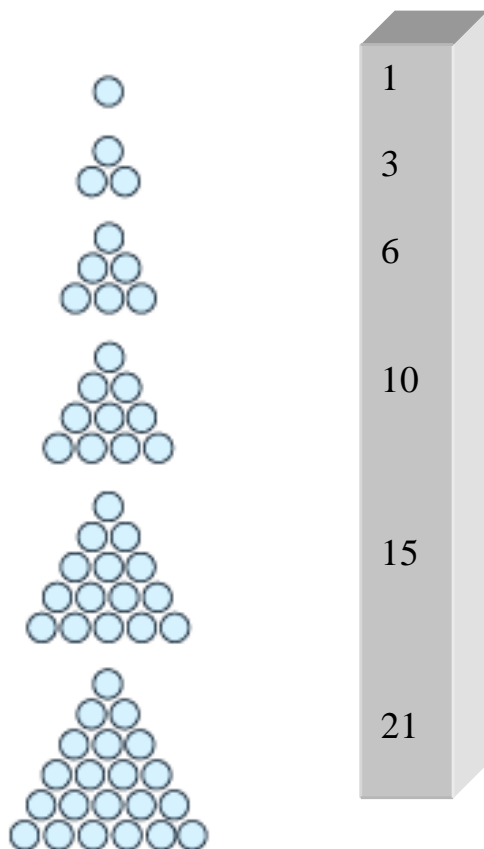
Square numbers (Area)



Cube numbers (Volume)



WS 14



WS15

You are on holidays and you want to go cycling with your bikes, but there 2 problems: you all share your bikes with your brothers and sisters, so that bike **A** can only ride the bike every 4 days, bike **B**, every 5 days and bike **C** every 10 days. Which day will all of you ride together?



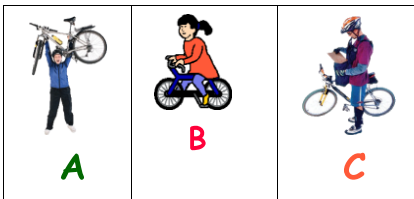
JULY 2010

lun	mar	mié	jue	vie	sáb	dom
			1	2	3	4
			B			
5	6 C A	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

AUGUST 2010

lun	mar	mié	jue	vie	sáb	dom
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Cut these out to help you to move the markers on the calendar



L.S.8 Editing and planning research

We will move markers for bike 1, 2, 3 on the calendar

Bike	1 2 3	cycles every	10 4 5	days, so	I can cycle on..
------	-------------	--------------	--------------	----------	------------------

I	counted on the number of days on a calendar followed a pattern (a common factor)
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WS 15.1

A Scottish family is on holidays in Spain. The family loves riding a pedalo, go together because there are not enough six seater pedalos. So, the father and the mother use one **A** every 3 days, the two brothers take another one **B** every 2 days and the sister **C** every 4 days. Which day will all the family ride together?



JULY

2010

lun	mar	mié	jue	vie	sáb	dom
			1 A	2	3	4
5	6 C B	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

AUGUST **2010**

lun	mar	mié	jue	vie	sáb	dom
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

WS16



Multiplication Grid

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

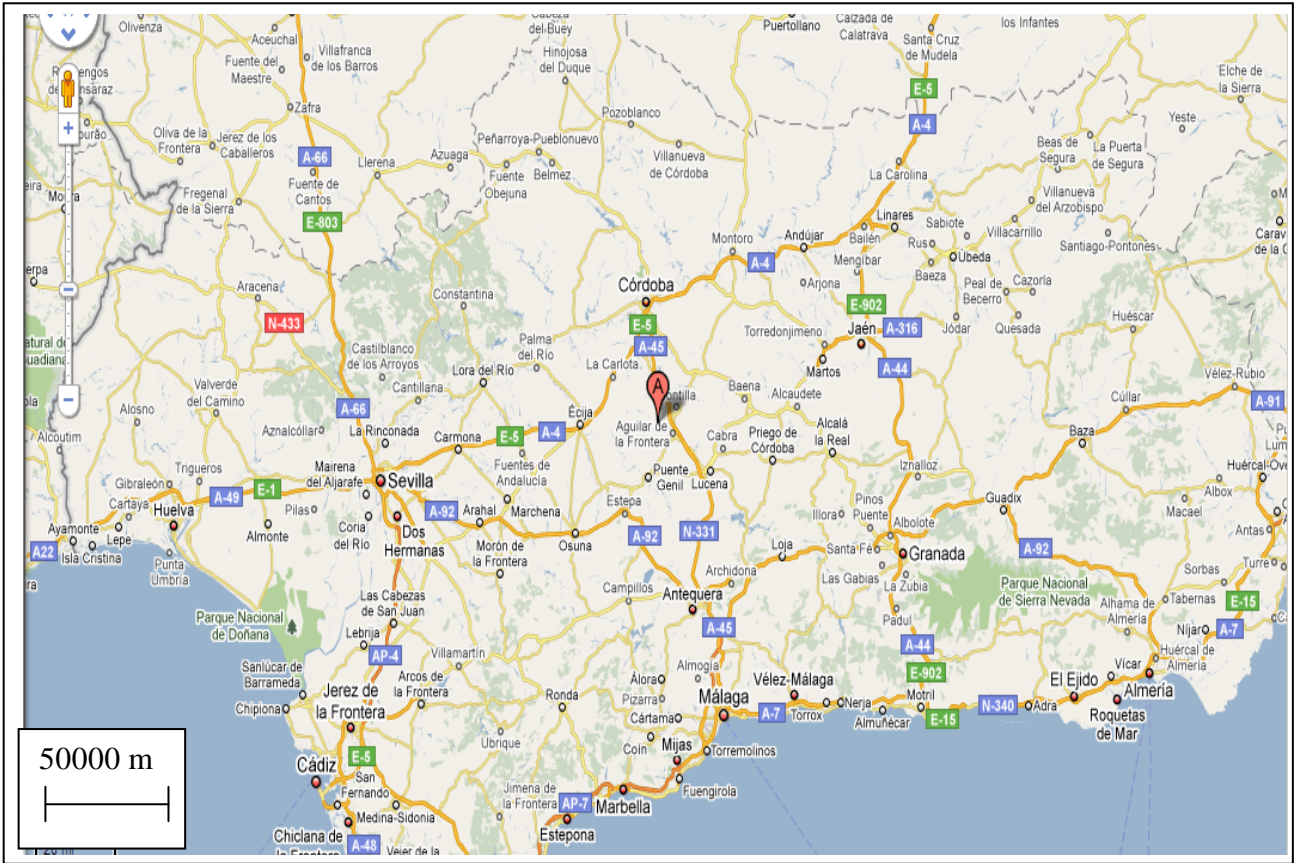
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ws17 Teacher's notes

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.
13.	14.	15.	16.
17.	18.	19.	20.
21	22	23	24

WS 18 **ANDALUCIA**

- Circle the provinces and work out some distances



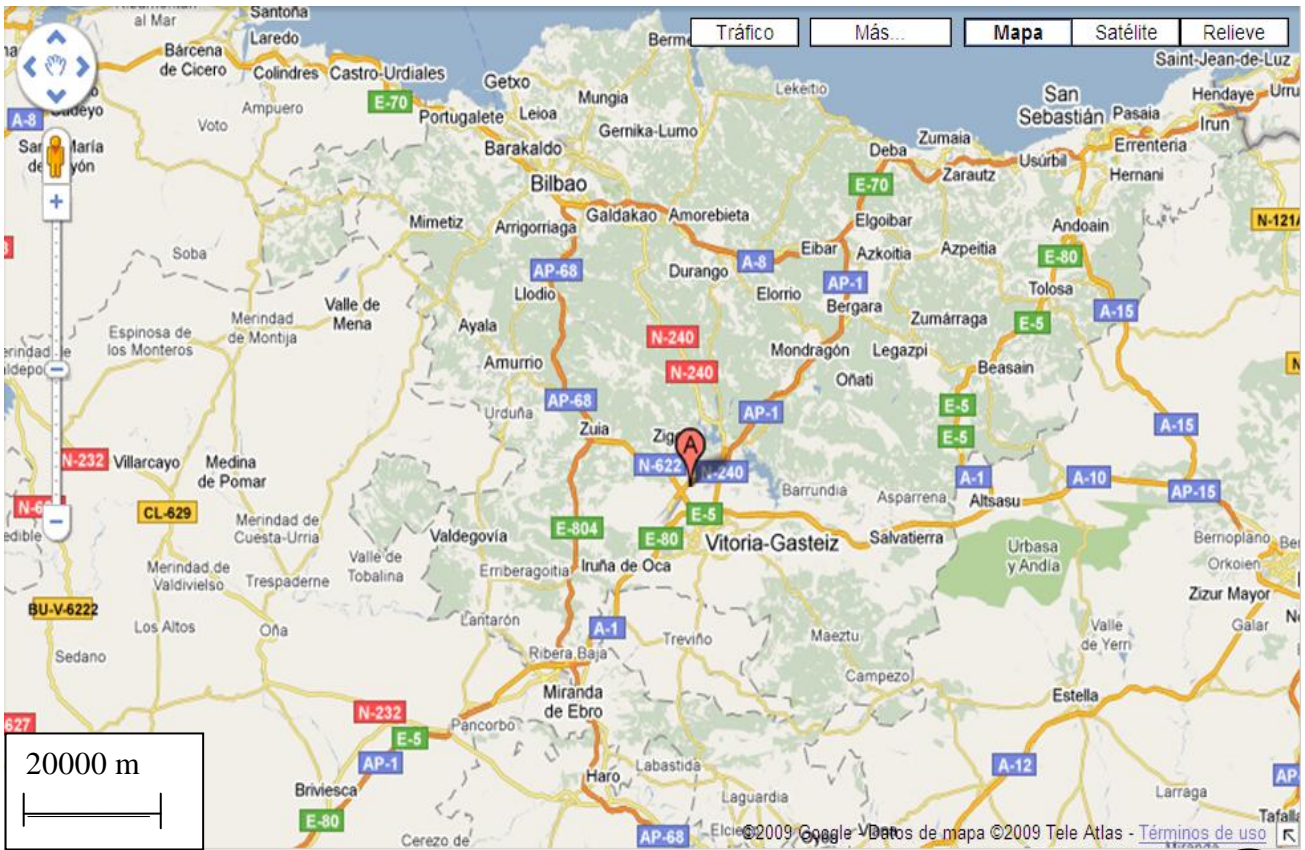
What's the distance between...?

From	Almeria Granada Jaen Cordoba Sevilla Cadiz Málaga	to	Almeria Granada Jaen Cordoba Sevilla Cadiz Málaga	there are	(...)km
------	---	----	---	-----------	---------

<i>Estimate</i>	<i>Actual</i>
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

WS 19 **BASQUE COUNTRY**

- Circle the provinces and work out some distances

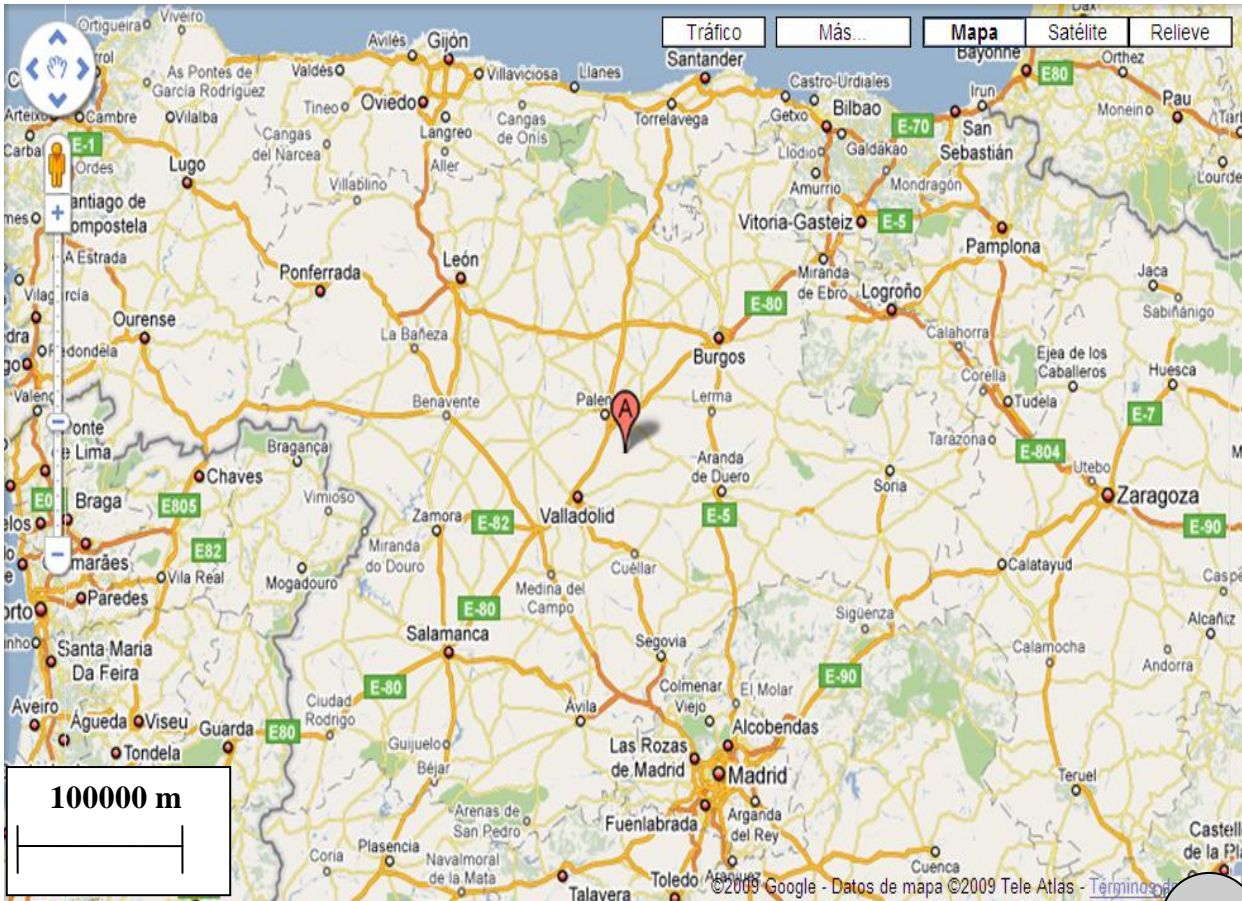


What's the distance between...?

From	Bilbao San Sebastian Vitoria	to	Bilbao San Sebastian Vitoria	there are	(...)km
<i>Estimate</i> <i>Actual</i>					
1.	1.				
2.	2.				
3.	3.				

WS 20 CASTILLA Y LEON

- Circle the provinces and work out some distances



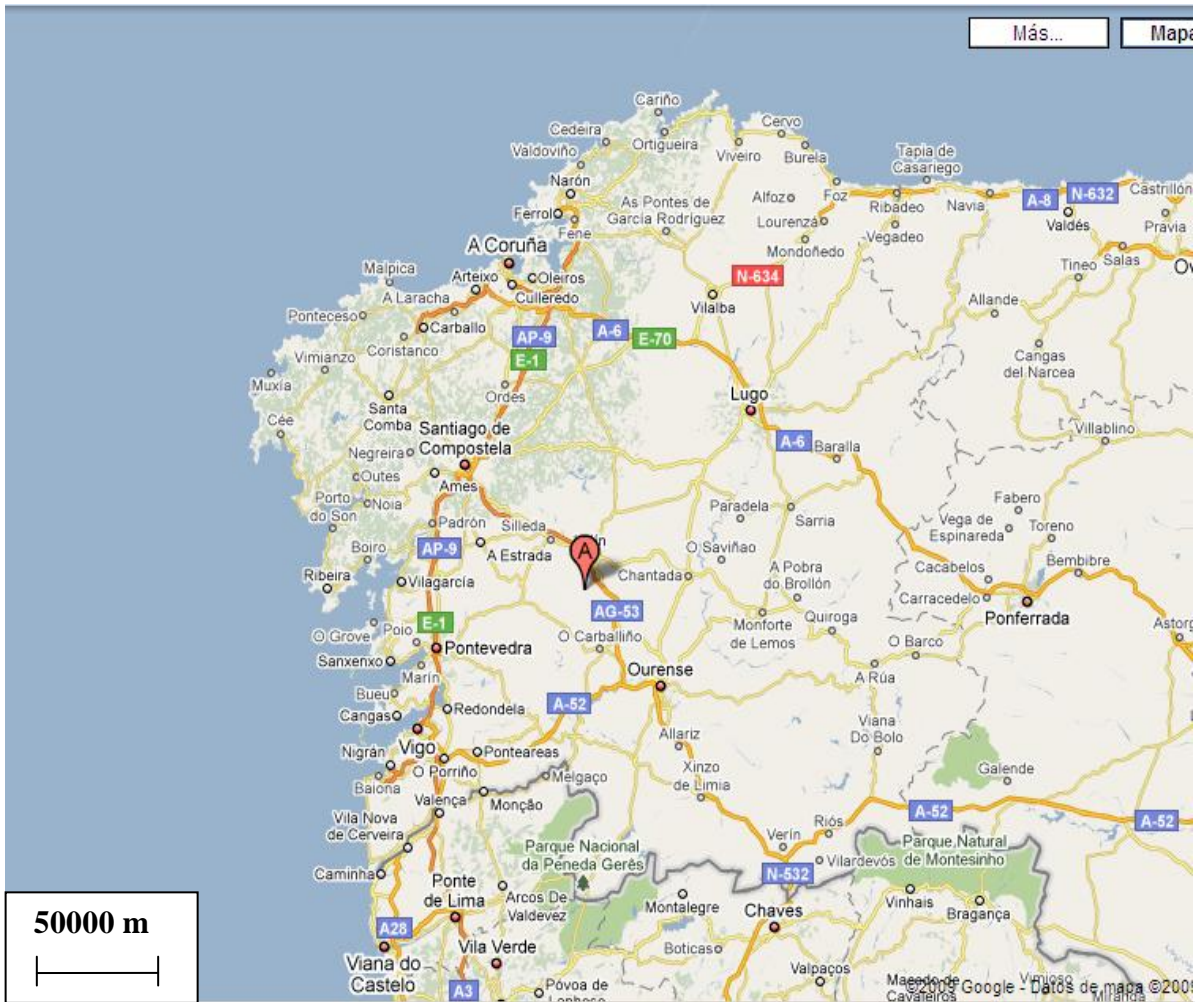
What's the distance between...?

From	Burgos Palencia Soria Segovia Avila Valladolid Leon Zamora Salamanca	to	Burgos Palencia Soria Segovia Avila Valladolid Leon Zamora Salamanca	there are	(...)km
------	--	----	--	-----------	---------

<i>Estimate</i>	<i>Actual</i>
1.	1.
2.	2.
3.	3.
4.	4.

WS21 GALICIA

- Circle the provinces and work out some distances



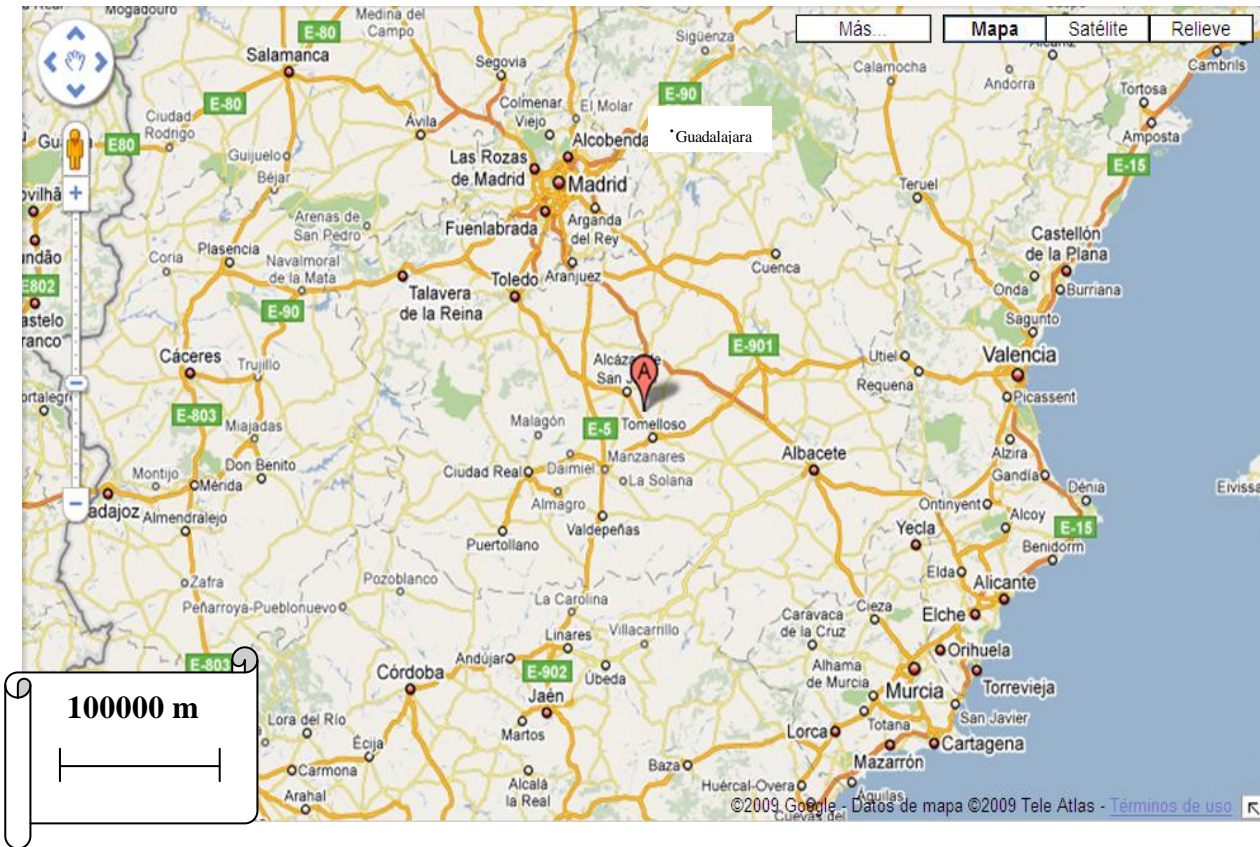
What's the distance between...?

From	A coruña Ourense Lugo Pontevedra	to	A coruña Ourense Lugo Pontevedra	there are	(...)km
------	---	----	---	-----------	---------

Estimate	Actual
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

WS 22 CASTILLA LA MANCHA

- Circle the provinces and work out some distances



What's the distance between?

From	Toledo Ciudad Real Cuenca Guadalajara Albacete	to	Toledo Ciudad Real Cuenca Guadalajara Albacete	there are	(...)km
------	--	----	---	-----------	---------

<i>Estimate</i>	<i>Actual</i>
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

WS 23 CANTABRIA

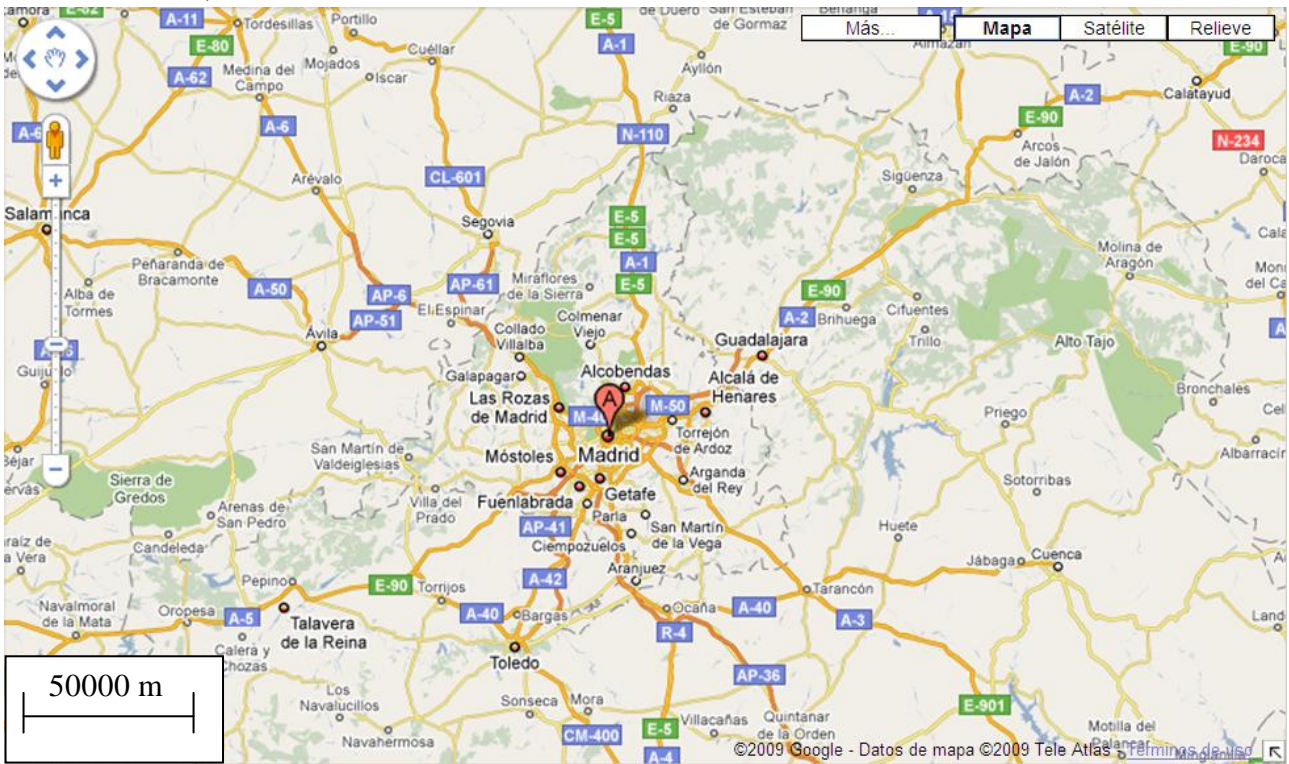
- Circle the provinces and work out some distances



What's the distance between?

	From	Santander Reinosa San Vicente de la Barquera Castro Urdiales	to	San Vicente de la Barquera Santander Reinosa Castro Urdiales	there are	(...)km
	<i>Estimate</i>	<i>Actual</i>				
	1.	1.				
	2.	2.				
	3.	3.				
	4.	4.				
	5.	5.				

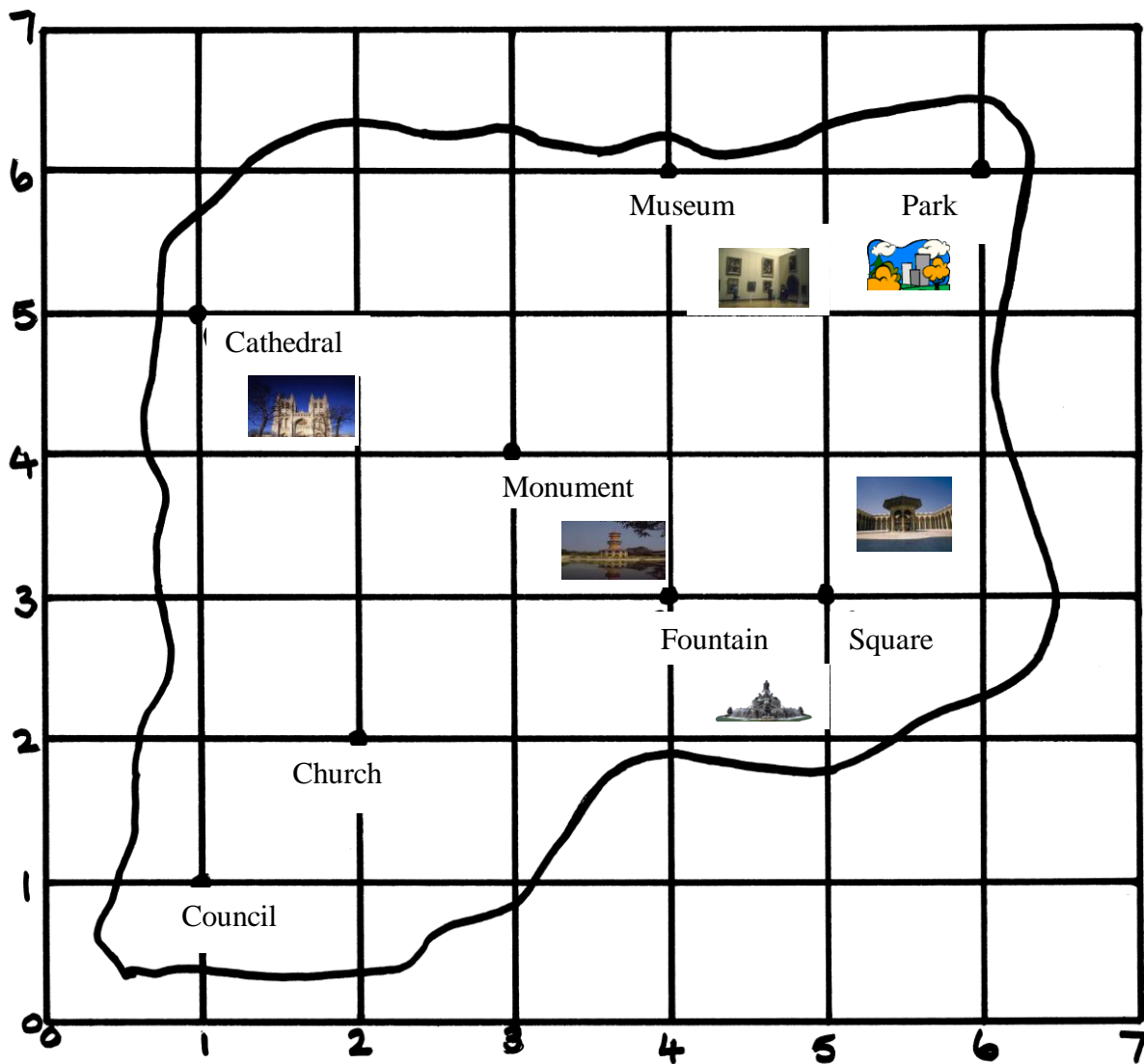
WS 24 MADRID



What's the distance between?

	Móstoles Alcalá de Henares Alcobendas Aranjuez Madrid	to	Móstoles Alcalá de Henares Alcobendas Aranjuez Madrid	there are	(...)km
--	---	----	---	-----------	-----------

<i>Estimate</i>	<i>Actual</i>
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.



1 cm \Rightarrow 1000 metres:

- What is the point of reference for the fountain / the cathedral / the park?

- Find out: which place are we talking about?
 - ✓ The Council to the _____ : 9'5 km
 - ✓ The monument to the _____ : 4'5 km
 - ✓ The square to the _____ : 6 km
 - ✓ The council to the _____ : 11'5 km

WS 25.1

- ✓ You walk from the Council to the square, then up to the cathedral.
 1. Do you pass through the fountain or the monument?
 2. What is the difference in distance between the two routes?
 3. If you take the faster route, how many metres do you walk?

1. _____ - _____ _____
2. _____ - _____ _____

- ✓ You ride by bike through the monument up to the cathedral. Once there, you check your “kilometer counter” and it shows 9’5 kilometres. Can you guess which place you started from?

--

- ✓ You can walk 1km per hour. In three hours walk you get to the church. Which place did you start from?

- ✓ **Maths challenge!**

Use the map to write a problem for another pair of students

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