

UKS2 Fieldwork and map skills

Orienteering Learning Module Key Stage 2



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1. The content has been written and informed by:
 - the principles of instruction.
 - cognitive load theory.
 - retrieval and spaced practice.
 - sequence and curriculum connection.
 - dual-coding.
2. The knowledge organisers are written for children, not adults.
3. The quizzes are designed to be used cumulatively and not as a start and end test. We embrace the teach, test, retrieve model.
4. Sentence case is not used in the knowledge notes as we want children to read and rephrase the content – not merely copy it.
5. Knowledge notes are designed to reduce the split-attention affect and can be placed on a double- or single-page layout. They also can be placed appropriately to support left or right-handed children. They can last more than one lesson.
6. This is a **lite version** and not all images in the resource section are displayed as we have a licence for schools within the curriculum partnership.
7. Previous and future learning modules complement the content in this pack. We don't view learning as an event, we prefer to see it as a cumulative and coherent sequence.

I hope you take inspiration from the content as well as this Learning Module. Use them to teach children about the wonderful outdoor spaces we can safely explore through orienteering.



INTRODUCE

Orienteering

|

Y6 Orienteering

map skills and navigation

Curriculum navigation

Share the big ideas that you will be studying.

GEOGRAPHICAL SKILLS

The use of maps, atlases and globes to know and explain more about location and a place.

Use 4 and 6 figure grid references with precision and accuracy.

Use a compass and map with increasing accuracy to navigate courses.

FIELDWORK

Use the knowledge of a place to plan, record, and set up an orienteering course.

ZOOM



GEOGRAPHICAL SKILLS AND FIELDWORK

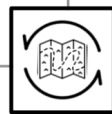
Orienteering map skills and navigation

Remember 4 and 6 figure grid references



Remember: what are 4 and 6 figure grid references? How do we use them?

Introduction to orienteering



What is orienteering? How do I orientate a map?

How do I navigate a simple indoor course using controls?

Outdoor orienteering courses



How do I navigate a simple outdoor course using controls?

Motals: how do I navigate multiple outdoor courses using controls?

How do I plan and set up an orienteering course?

ZOOM



Show how the specific content relates to the big ideas.

Show the stages of the study, one sequence at a time.

Big Picture, Small Picture Adapted from Walkthrus by Tom Sherrington and Oliver Caviglioli

The big idea

Y6 Orienteering map skills and navigation



Geographical skills and fieldwork

- use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied
- use the eight points of a compass, four and six-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world

Previous learning

Year 5
4 and 6 figure
grid references



Year 5
OS map
and fieldwork



Year 6
Comparison
study








Year 6
Physical
processes



Year 6
Settlements



SUGGESTED DISCIPLINARY KNOWLEDGE – THINKING AS A GEOGRAPHER

Place and Space 	Scale and Connection (Relationship and interdependence) 	Physical and human geography 	Environment and sustainability 	Culture and diversity (Uniqueness) 
<p>What new vocabulary can you use to describe the school grounds?</p> <p>How could orienteering help you understand more about how the space in a place is used?</p>	<p>How does map work and orienteering help you know and explain more about distance?</p> <p>Why is distance and connection important in orienteering?</p>	<p>How do you use physical and human features to help you navigate?</p> <p>How would you connect physical and human features with the word 'attack point'?</p>	<p>How can orienteering help you get to know the environment?</p> <p>What footprint does orienteering leave on the environment?</p>	<p>How could orienteering help you see and get to know new places?</p> <p>What places would you like to orienteer in? Why is that?</p>



Misconceptions – learning traps pupils can fall into

✗ Not true

✓ Teach this

You must have a compass to take part in orienteering.

Basic map skills enable participants to follow an orienteering course. You don't need a compass to begin with. As orienteering becomes more advanced, a compass will be essential.

Orienteering can only be done in forests and rural areas.

Orienteering is a sport that can be undertaken in the school grounds or in more isolated areas. It's best to learn the basics in a safe and known area.


Orienteering is only for boys.

Orienteering is a sport for all people: girls, boys, men and women. There are many types of orienteering events, including on foot, on mountain bikes, on skis and in wheelchairs.




Knowledge Organiser

Orienteering




involves using a map and compass to find your way around a set course

Know the area or countryside




assess read understand appreciate

Skill



map reading compass work decision making mental alertness


Orienteering symbols



start finish control



orientating the map



Turn the map to fit the ground

Align the features you see around you


Look for easy points of reference

roads, trees, water

Don't worry if the writing is upside down

Make sure the map is orientated to the land

read the area



Read the contour lines to tell you what the land is like around you

Is it going to be steep or hilly?

Water or trees nearby?

Are there roads to help fit the map to the ground?


Legend (symbols)

gives you a clue to what things are near to you on the map

	Coniferous trees
	Non-coniferous trees
	building
	main road
Sch	school
	contours

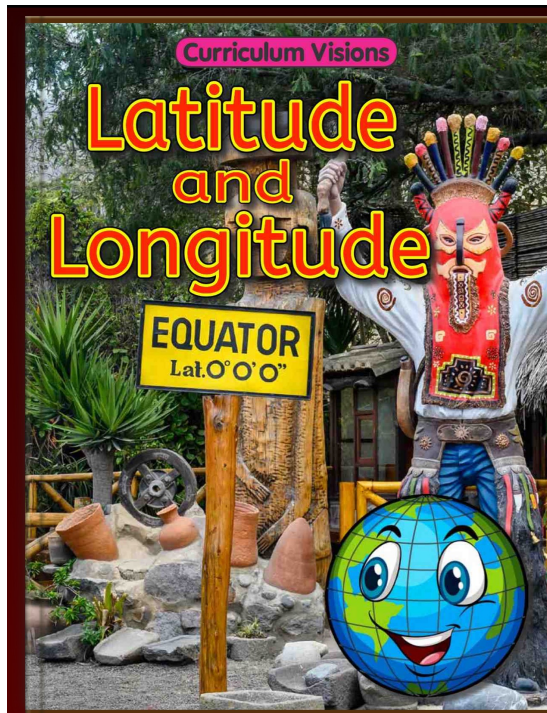
these help to find your location and know where you are

course

- start point**
everyone sets out from here
- checkpoints**
called 'controls'

positioned in different places with letters
- controls** must be visited in order
cross the finish point
use a detailed map to orienteer the route



Curriculum Visions Resources and video books



Ordnance Survey – Map scale

<https://getoutside.ordnancesurvey.co.uk/guides/understanding-map-scales/>

Setting the map to the ground

<https://www.youtube.com/watch?v=pkIMXgaU7Hc>

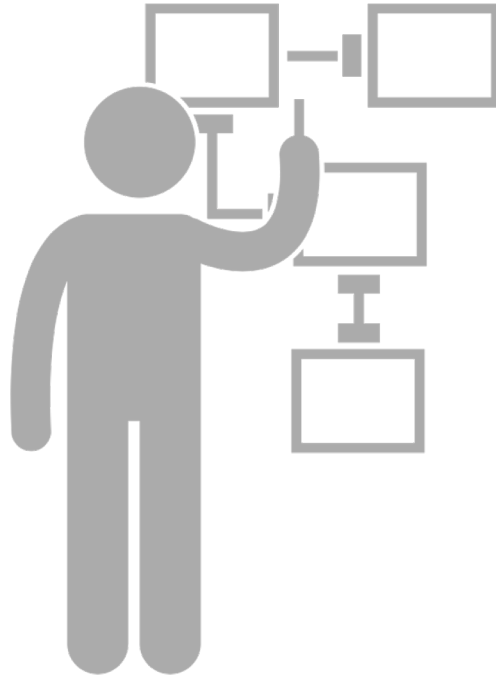
OS Map Legend (symbols on the ground)

<https://www.ordnancesurvey.co.uk/documents/25k-raster-legend.pdf>



Suggested foundational knowledge
that is essential to teach

Suggested sequence	Learning question	Cumulative questions from quiz					
<p>DESIRABLE</p> <p>1</p>	<p>Remember: what are 4 and 6 figure grid references? How do we use them?</p>	1 - 6					
<p>ESSENTIAL</p> <p>2</p>	<p>What is orienteering? How do I orientate a map?</p>		7 - 10				
<p>ESSENTIAL</p> <p>3</p>	<p>How do I navigate a simple indoor course using controls?</p>			11 - 14			
<p>ESSENTIAL</p> <p>4</p>	<p>How do I navigate a simple outdoor course using controls?</p>						
<p>DESIRABLE</p> <p>5</p>	<p>Matala: how do I navigate multiple outdoor courses using controls?</p>						
<p>DESIRABLE</p> <p>6</p>	<p>How do I plan and and set up an orienteering course?</p>						1 - 14
	<p>Learning focus / question</p> <p><i>These can be taught over more than one lesson, if needed.</i></p> <p><i>Remember Connect, Explain, Example, Attempt, Apply and Challenge.</i></p>						



Knowledge notes for planning

Remember: what are four and six figure grid references?

4 figure grid reference

gives a location of a
1km x 1km grid square

find the **two-letter** grid square
reference of your location

identify where the co-ordinates
meet at your chosen location

write the grid
square reference, for example:

TL

write the
Easting number **first**
(ALONG the corridor)

TL67



write the Northings
number **second**
(UP the stairs)

TL67 45



6 figure grid reference

gives a location within
a 100m x 100m grid square

zoom in
100m x 100m per square

read the Eastings 672



read the Northings 457



Write them down

TL 672 457

Eastings → ← Northings

What is orienteering?
How do I orientate a map?

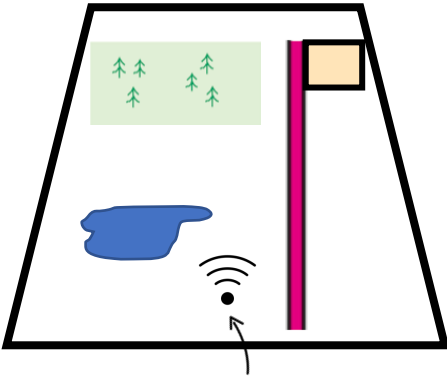
orienteering

using a map and compass to navigate around a set course

orientating the map



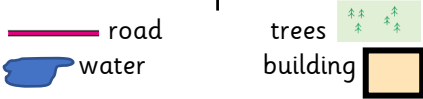
Turn the map to fit the layout of the ground
align the features you see



you are here and looking ↑

EXAMPLE

Look precisely for obvious points of reference



Orientate your map (turn the map)

road and building on your right
water on the left with trees to the left and in front of you

Don't worry if the writing on the map is upside down

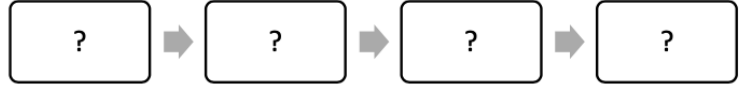
put your thumb on the map to show your position

Year 6: Orienteering map skills and navigation

Q1 What is orienteering? How do I orientate a map?

Sequencing **Summarising**

Produce a flow diagram to summarise in four steps how to orientate a map.



Mapping **Questioning**

On an A4 piece of paper, draw a simple map that includes three physical features and two human ones. Create a set of questions about your map. For each question, your partner needs to demonstrate orientating the map to answer it.

Examples

Where would you be standing and which direction would you be facing if:

- X was on your right-hand side?
- X was North East of you?

Challenge: use OS map symbols for the map features.

Locating

Using slide 26 of the CUSP unit, identify four features within the section of the map shown here that would be easy points of reference for orienteering. Complete the table for your reference points.

Name of feature	Physical or human?	6-figure grid reference
place of worship with tower	human	626 425



Challenge: are physical or human features easier to use as reference points? Explain your reasoning.

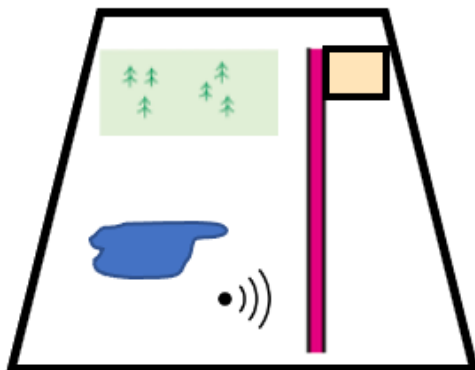
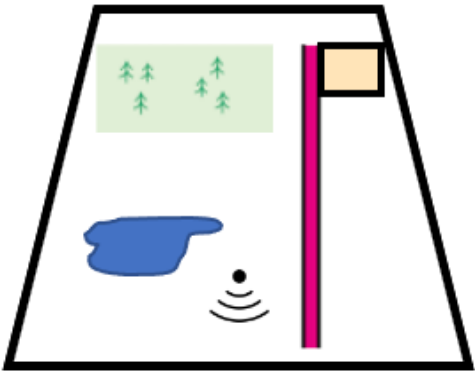
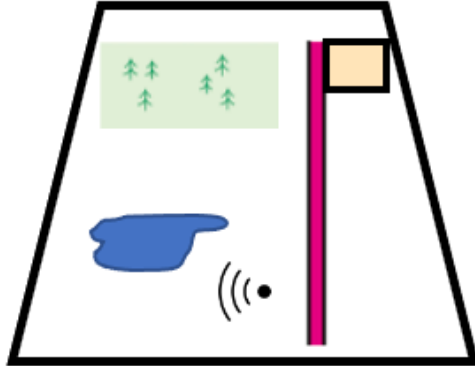
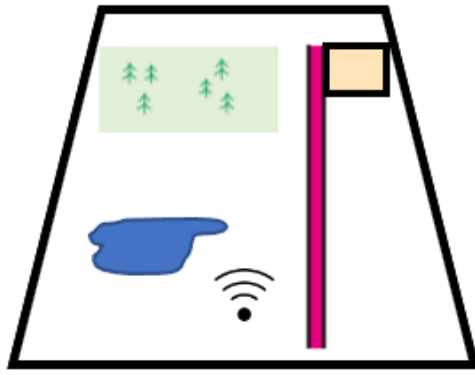
Reasoning **Applying**

As soon as a map is published, it is out of date.

Do you agree or disagree with this statement? Explain your reasoning.

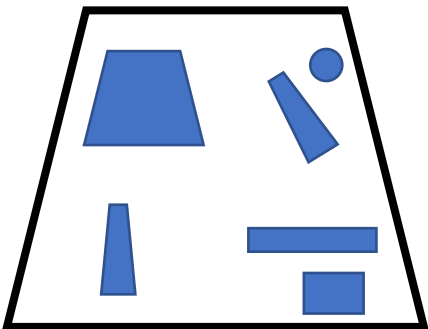
When using a published map for orienteering, what **can't** it show that you would need to consider in order to:

- complete the course successfully?
- complete the course safely?



How do I navigate a simple indoor course using controls?

Remember to orientate the map and 'thumb' your position



orientate the map at each control point to locate the next one

look out for distinctive features of the gym equipment

ensure your map is set to the ground and orientated correctly

the numbers represent the order in which you must locate each control point

Write down the letter at each control point as you visit them in order

Remember these symbols



Start
Control

Finish

Find these resources from pages 35 onwards
Source – www.Scottish-orienteering.org

Year 6: Orienteering map skills and navigation

Q2 How do I navigate a simple indoor course using controls?

Explaining

Using one of the maps from Slide 29 or 30 of the CUSP unit, give a verbal masterclass to a partner to explain how to navigate a simple orienteering course. Your masterclass must include the key words shown below as well as an explanation of the established symbols.

features

control
point

locate

orientate

symbols

Ranking Justifying

As a group, discuss and rank each of the skills shown below according to how important they are in navigating an orienteering course successfully. Then, complete the pyramid with the labels to show the ranking you agreed upon. Compare your version with another group's and justify your decisions to them.

listening

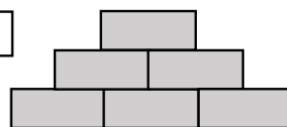
observing

sequencing

directing

talking

travelling



Instructing



Working in pairs, designate one person as A and the other, B. Place a covering, such as a scarf, over person A's eyes. Person B must guide their partner through one of the courses (which they have not already completed) from Slide 29 or 30 Give clear instructions for person A to reach each control point. Swap over.
Safety: be aware of other people and obstacles when guiding.

Is it easier to give the instructions or to follow them?

Challenge: if someone was visually impaired, how would they recognise the letter to be collected at each control point on an orienteering course? How could this problem be solved?




Reimagining

Apart from collecting a letter at each control point, how else could someone prove that they have visited each control point on an orienteering course? Discuss this in your group then share your ideas with another group.

How do I navigate a simple course outdoors with controls?

Single Course
 |
 orienteer a single course
 |
 navigate your way to each control point

interpersonal skills

-  work as a team
- |
-  listen to each other
- |
-  make decisions

map skills

- orient the map to the ground
- ↓
- check your location (thumb the map)
- ↓
- choose an **attack point** (a large, easily found feature near to the control point)
- ↓
- move swiftly to the chosen control point as a team
- ↓
- record the control letter

Year 6: Orienteering map skills and navigation

Q3 How do I navigate a simple course outdoors with controls?

Comparing



How was navigating an outdoor course different from an indoor one?
 What additional challenges did the outdoor course present?

Always, sometimes or never true: the control points on an outdoor orienteering course that are the furthest distance away are the most difficult to locate. Explain your reasoning.

Listing Suggesting



For the outdoor course completed, list the attack points for each of the control points. Was it difficult to identify a specific attack point for any of the control points? If so, how could this be improved?

Control point	Attack point
1	school garden

On large, outdoor orienteering courses, there may not be a significant feature to use as an attack point. How do you think orienteers locate the control point in these situations?

Reasoning

1. Would you prefer to navigate an outdoor orienteering course on your own or as part of a team? Explain your reasoning.
2. List the advantages and disadvantages of navigating an orienteering course as part of a team of people.

Advantages	Disadvantages

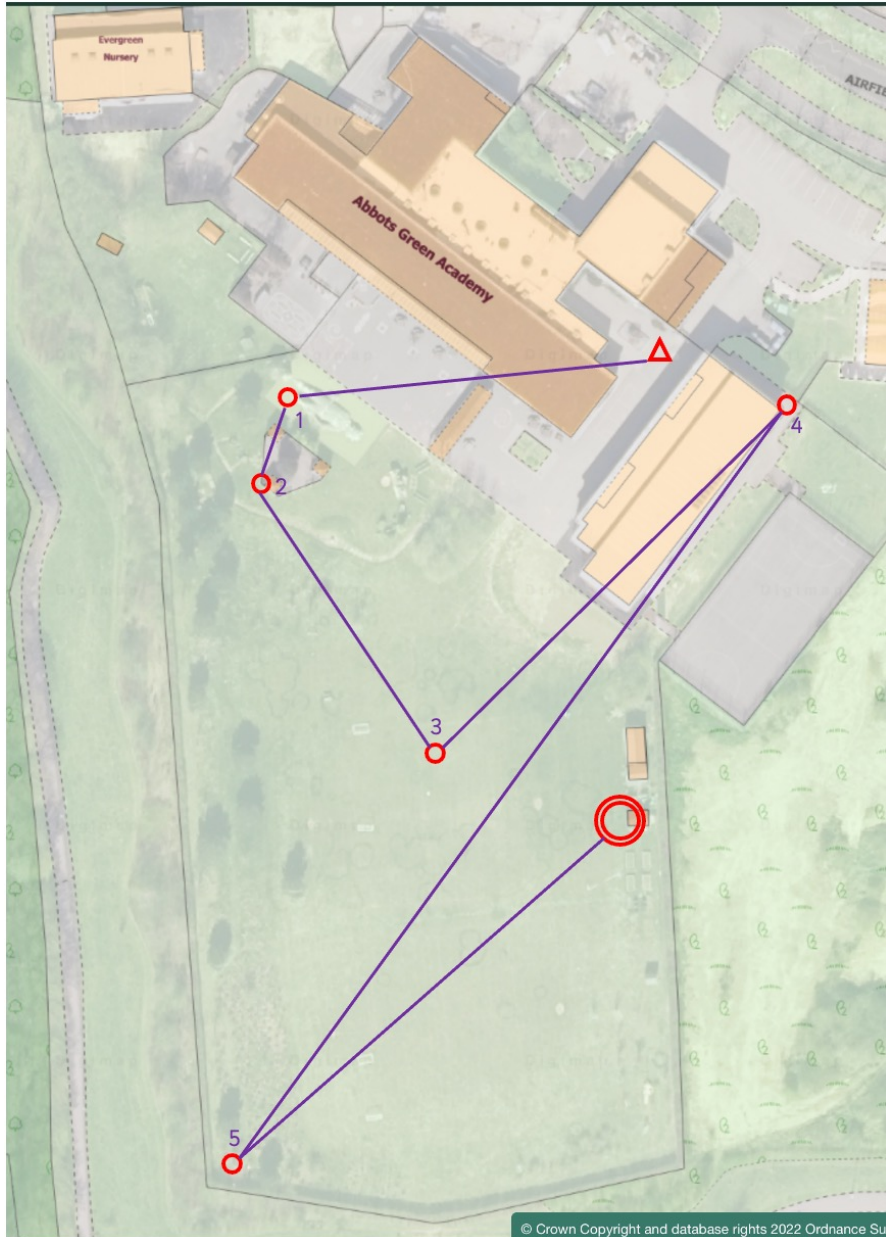
Challenge: when working as a team, which do you think is the single most important interpersonal skill to have?

Evaluating

This is an example of an international orienteering flag.



- Why do you think these colours were chosen?
- What combination of colours would you **not** choose for outdoor orienteering? Explain your reasoning.
- Are there any natural terrains around the world where these international colours may not be sufficiently distinctive?



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Names	Controls				
	1	2	3	4	5
Alex, Lauren, Mary, Darren	K	V	X	P	Q

Motala: how do I navigate multiple outdoor courses using controls?

Motala

orienteer three different courses that are looped

navigate them in varied order

interpersonal skills



work as a team



listen to each other



make decisions

map skills

orient the map to the ground



check your location (thumb the map)



choose an **attack point** (a large, easily found feature near to the control point)



move swiftly to the chosen control point as a team




record the control letter

Choose a new colour course and repeat. Share your course recordings with your teacher

Year 6: Orienteering map skills and navigation

Q4 Motala: how do I navigate multiple outdoor courses using controls?

Creating  Evaluating 

After navigating your Motala course, create a table to compare the three different courses. Decide on appropriate headings for the features to compare, then make notes under these.

Challenge: in what sorts of locations do you think a Motala course would be chosen for a competition rather than one, long course? (They are useful where space is at a premium, for example.)

Planning  Investigating  

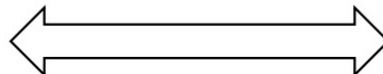
If you were being timed to complete a Motala course competitively, do you think the order in which you completed the three different courses would matter in terms of your overall time?

Discuss this using the course on Slide 32 of the CUSP unit (or one completed by you) and decide on a strategy for completing all three courses in the shortest possible time with your group. How could you test which order is the quickest? How will you ensure that the test is fair and your results are reliable?

Reasoning  Ranking  

What information would an orienteer need about an unfamiliar course to plan the order in which they would complete three different courses ahead of a Motala race? Rank these factors in order of how much they would affect the overall time.

least affect



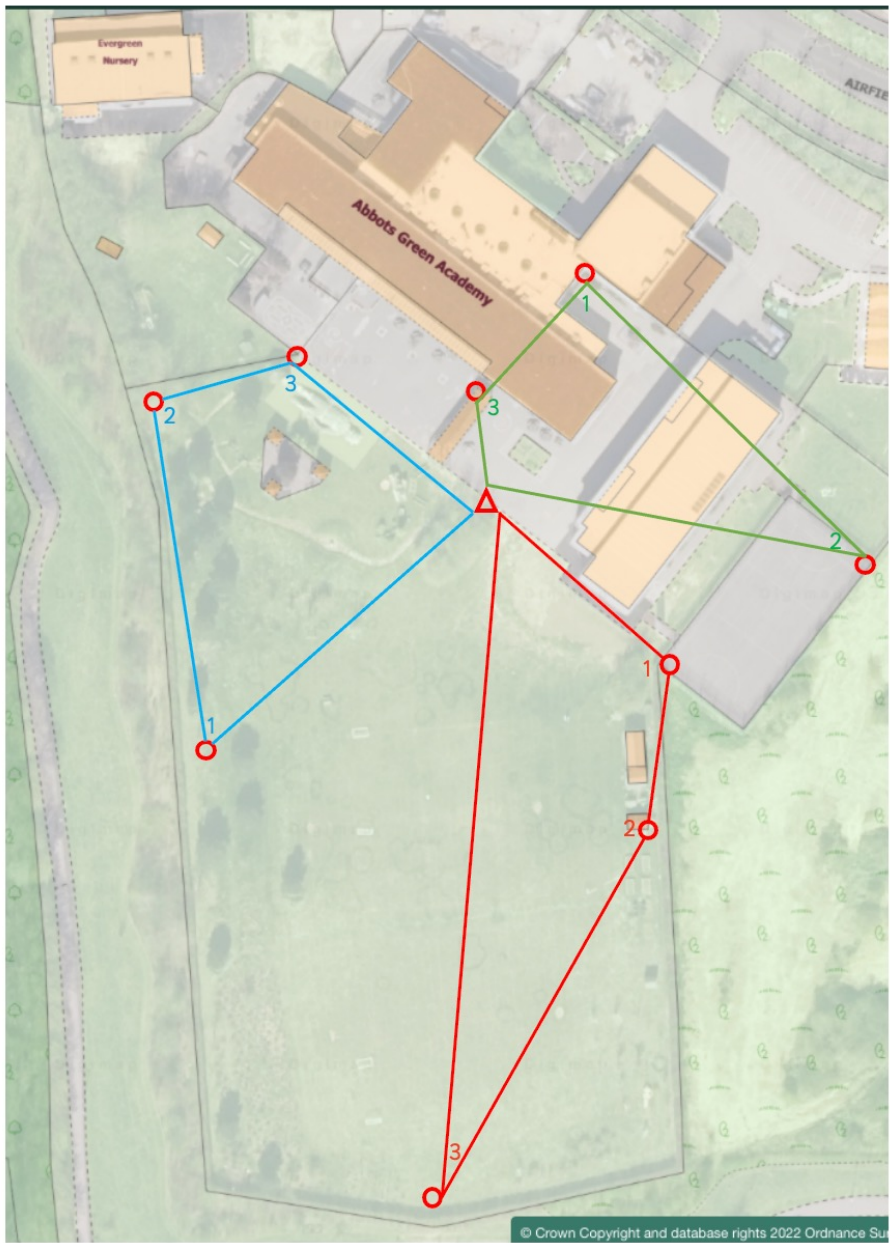
most affect

(Pupils will need to consider the length of each course, the type of terrain and contouring, for example).

Evaluating  Creating 



1. List the potential damage that an orienteering competition could do to the natural environment. Will certain times of year be more problematic than others? (Pupils may consider birds nesting in spring as an issue, for example.)
2. Create a flier to send out to competitors with a list of five things they should do to minimise their 'footprint' on the environment when competing.





Name	Red Course			Green Course			Blue Course		
	1	2	3	1	2	3	1	2	3


How do I plan and set up an orienteering course?

Create a map

Using Digimap for Schools

Print a map of the school grounds

 Agree and select START and FINISH points 

 Mark the position of the 7 control points on the map

Use large identifiable features to help position the controls

Create a table to record

Names	Controls						
	1	2	3	4	5	6	7

Make up a 7 letter word without repeating letters (picture)

Randomise and allocate these letters to the control points

Position the controls on your course and give them a number on the map

Make some controls more visible and some hidden from view



Walk the course to check the accuracy of the controls on map

Give the course to another team

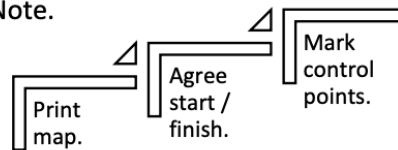
Can they accurately navigate the course and solve the word puzzle?

Year 6: Orienteering map skills and navigation

Q5 How do I plan and set up an orienteering course?

Summarising  Sequencing 

1. Complete the steps below to summarise how to plan and set up an orienteering course. Record each step in no more than three words. Check that the sequence is accurate.
2. Working with a partner, take it in turns to hide one or two steps for the other person to identify without referring to the Knowledge Note.



Planning 



Plan and set up an orienteering course that would be accessible to a wheelchair user. Think about:

- travelling / distance between control points
- being able to see the letter at the control point.



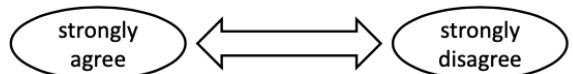
Walk or wheel the course to check on its suitability and make any necessary adjustments.

Designing  Evaluating 

What do you think are the most important features of a successful orienteering course? Design a form for another team to use to evaluate these features in relation to your orienteering course once they have completed it.

Possible formats:

- ranking
- agree / disagree continuum
- multiple choice (tick statements)



Persuading 

The Olympic Committee has decided to include an additional event in the next games. Prepare a speech to argue the case for orienteering as an Olympic sport. What are the benefits of orienteering? How would you persuade your audience?



Master copy	Controls						
	1	2	3	4	5	6	7
	c	i	e	p	r	u	t

Names	Controls						
	1	2	3	4	5	6	7



Click on the link below to import this quiz to your Socrative account

<https://b.socrative.com/teacher/#import-quiz/65751774>

Cumulative quiz

It's most effective if you use these questions through cumulative quizzing

Lesson by lesson

Teach | Test | Teach | Test | Teach | Test | Test

Year 6 Orienteering: map skills and fieldwork

1. A four figure grid reference identifies a...

- (A) 100km x 100km grid square.
- (B) 10km x 10km grid square.
- (C) 1km x 1km grid square.
- (D) 100m x 100m grid square.

2. A six figure grid reference identifies a...

- (A) 100km x 100km grid square.
- (B) 10km x 10km grid square.
- (C) 1km x 1km grid square.
- (D) 100m x 100m grid square.

3. What type of grid reference is this map showing?

- (A) Four figure grid reference.
- (B) Six figure grid reference.
- (C) Eight figure grid reference.



4. What is the grid reference identified on the map?

- (A) TL6645
- (B) TL6745
- (C) TL6846



5. What type of grid reference is this map showing?

- (A) Four figure grid reference.
- (B) Six figure grid reference.
- (C) Eight figure grid reference.



6. What is the grid reference identified on the map?

- (A) TL 671 454
- (B) TL 672 457
- (C) TL 673 458



7. Orientating the map means...

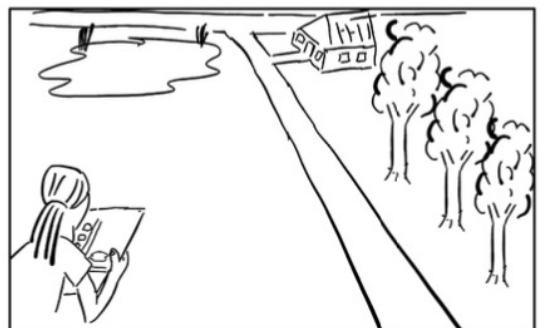
- (A) folding it up to go in your pocket.
- (B) to turn the map to fit the ground.
- (C) to keep the map pointing north.

8. When you have orientated the map, the writing must always be the right way up.

- (T) True
- (F) False

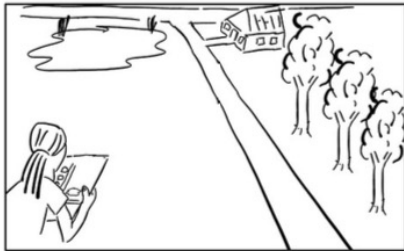
9. This map is orientated to fit the ground. Do you agree or disagree

- (A) Agree - the map is turned to fit the ground.
- (B) Disagree - the map is not turned to fit the ground.

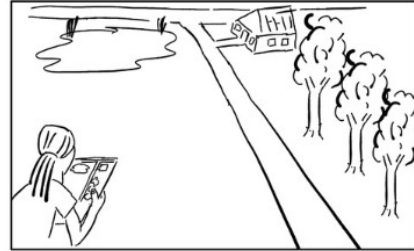


10. Which map is orientated correctly to fit the ground.

(A) I think this map is orientated correctly and fits the ground.



(B) I think this map is orientated correctly and fits the ground.



11. In orienteering, controls are...

- (A)** big cones to stop people going off the path.
- (B)** markers for the end of the course.
- (C)** markers that identify a precise location to navigate to.

12. In orienteering, this symbol means the...

- (A)** Starting point.
- (B)** Control marker.
- (C)** Finishing point.



13. In orienteering, this symbol means the...

- (A)** Starting point.
- (B)** Control marker.
- (C)** Finishing point.



14. What is an attack point?

- (A)** A hidden control point.
- (B)** The finish marker.
- (C)** A large and obvious feature near a control marker.



Teaching and learning resources



Finding a four figure grid reference

pinpoint and ZOOM in again

Haverhill can be found in the grid square **TL 64**

TL64 can be divided again into 10 x 10 internal squares that are 1 km²

The shows the location we want to identify within TL64

Look carefully where the coordinates intersect

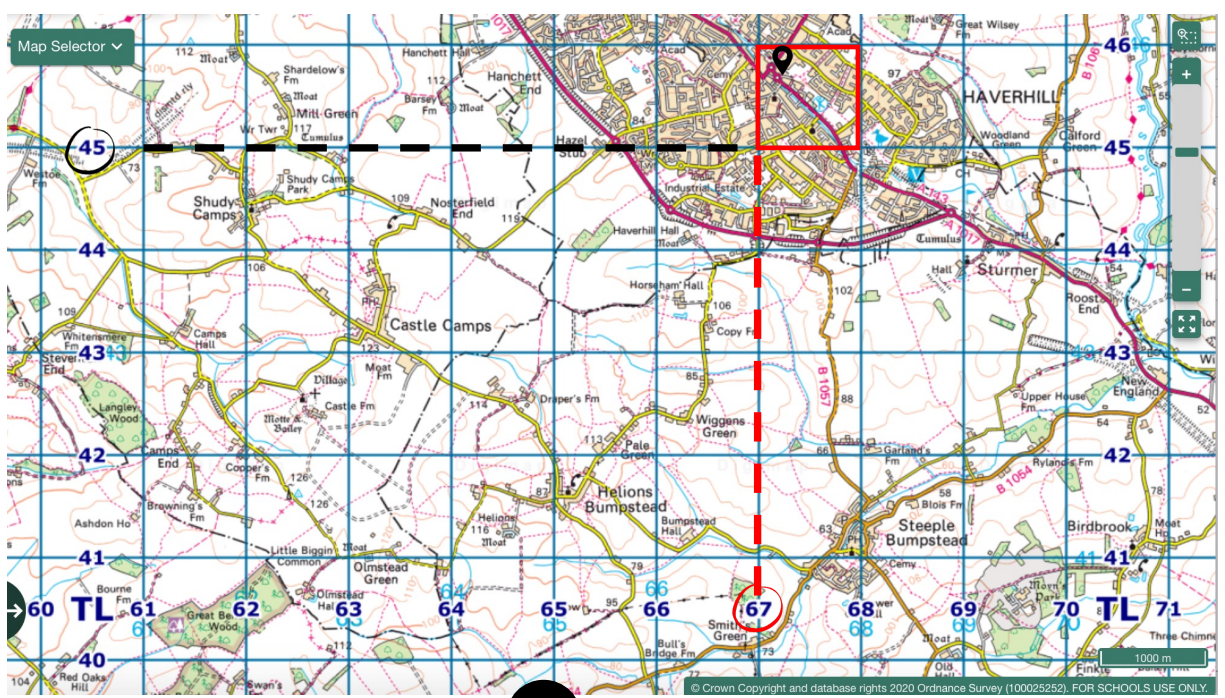
1 Write the **Eastings** number first.

→ 67

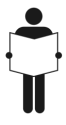
2 Write this **Northings** number second.

↑ 45

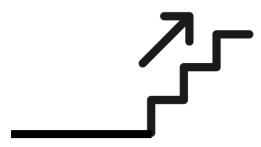
2
Write this **Northings** number second.



→ **1** Write this **Eastings** number first.



A useful way to remember the order of how to find grid references.



ALONG the corridor and **UP** the stairs
(Eastings) (Northings)

The **four figure grid reference** locating the area we want to identify is.

TL 6745



Pinpoint a location using a six figure grid reference

PRECISION

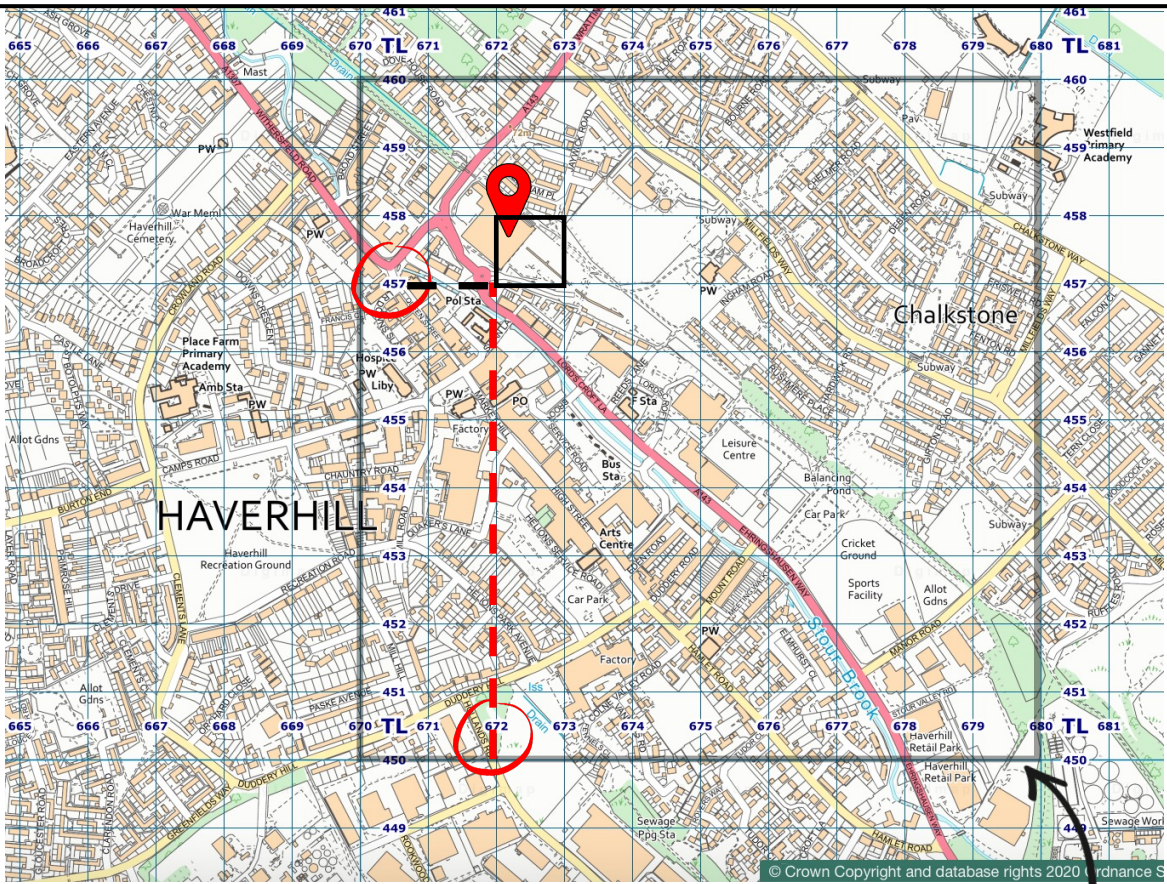
A six figure grid reference shows the position of a building or landmark within that grid square

Given that the supermarket is in grid square TL 67 45 we can ZOOM in again.

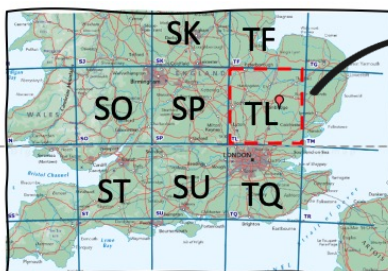
That square is divided again into tenths to give an EXACT location of the superstore

TL 67 45

TL 672 457



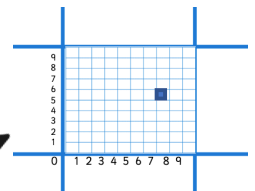
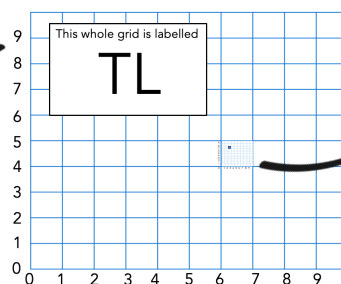
Map references are a bit like stacking dolls. They fit inside each other.



TL

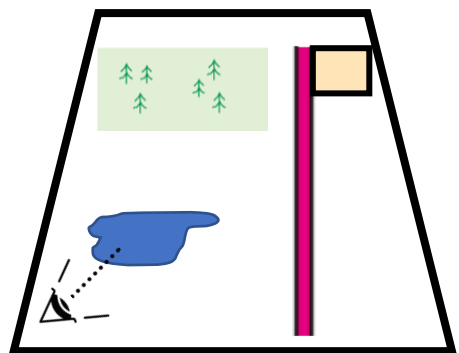
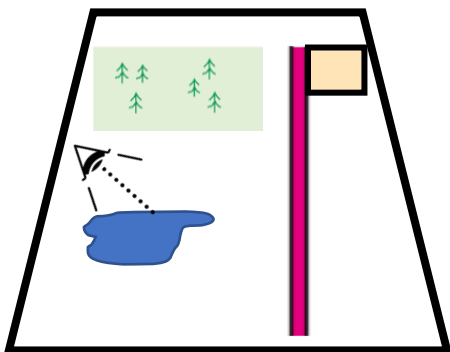
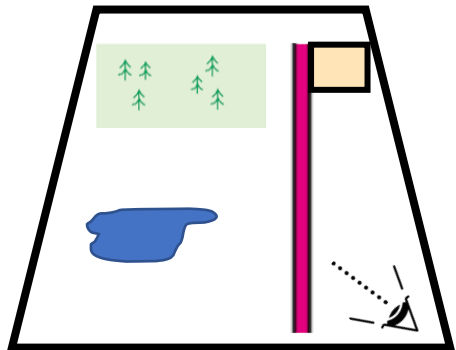
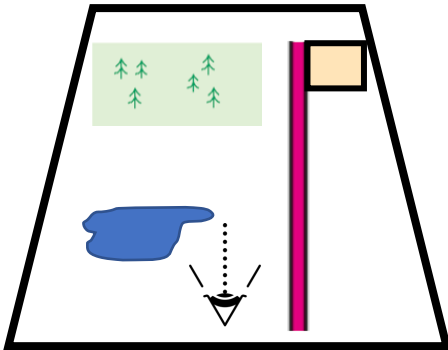
TL 64

TL 6745



Orientate the map

|
describe the features of the land and their position to you

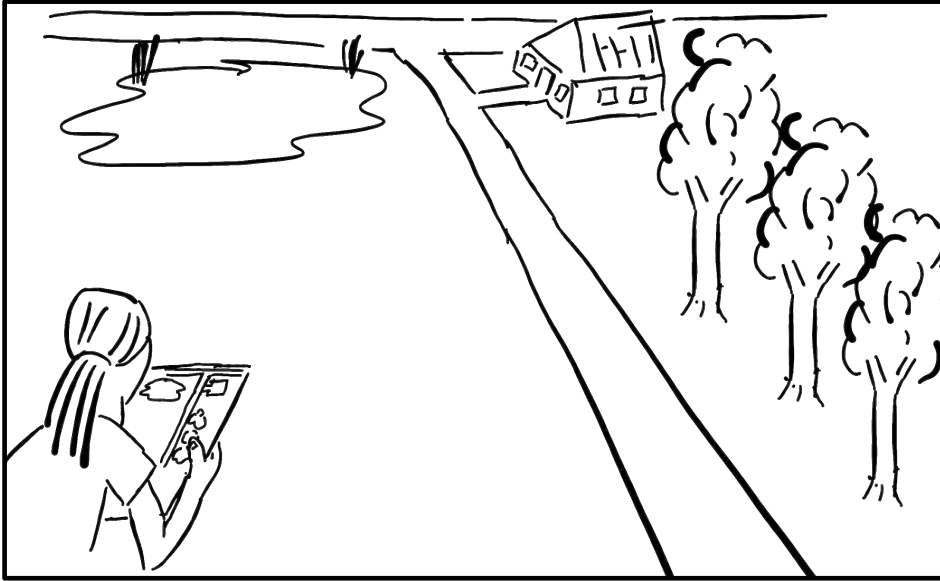


Key

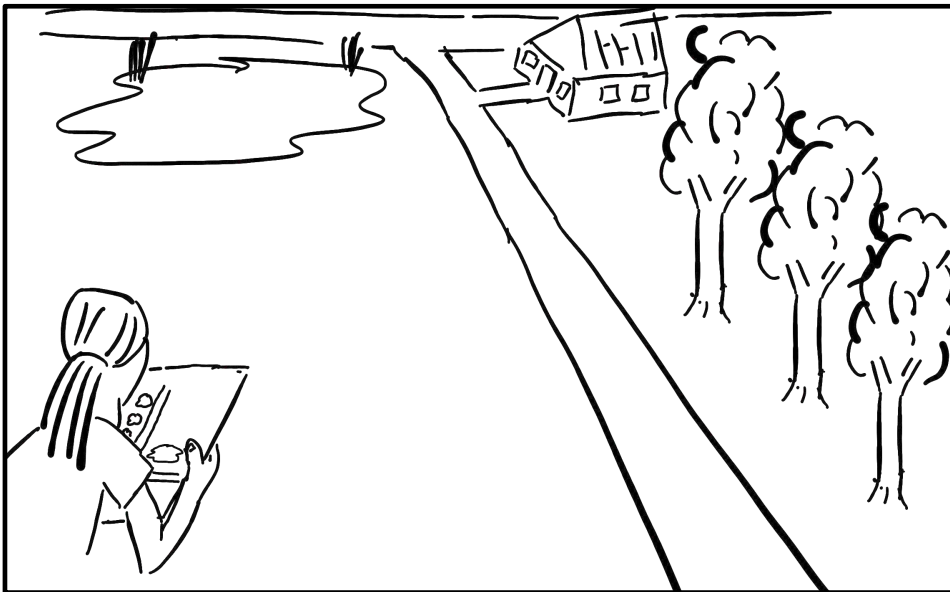
-  water
-  woodland
-  road
-  building

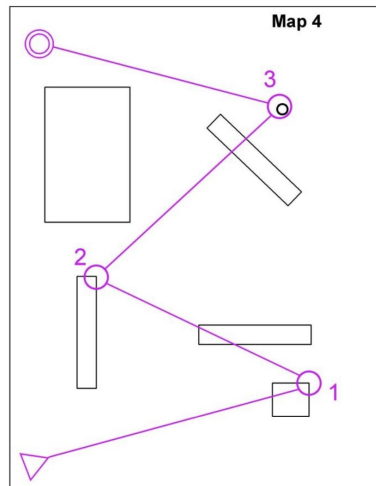
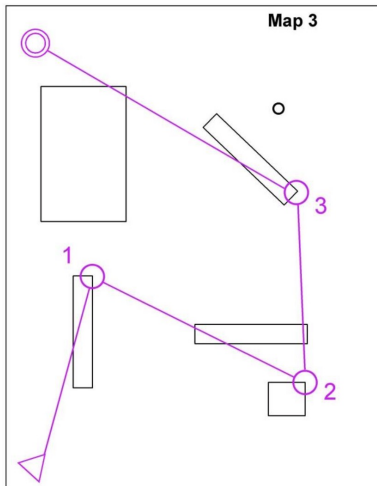
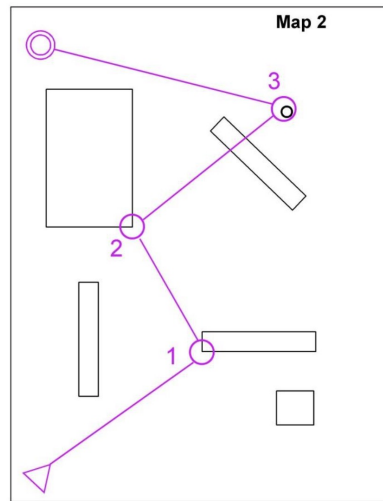
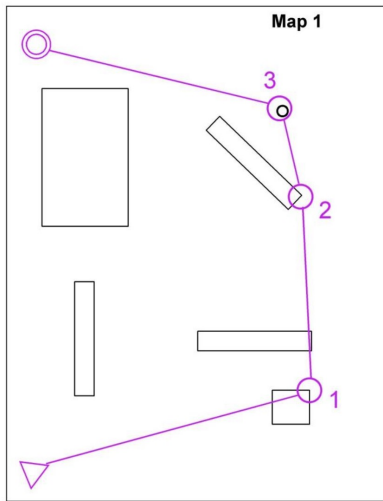
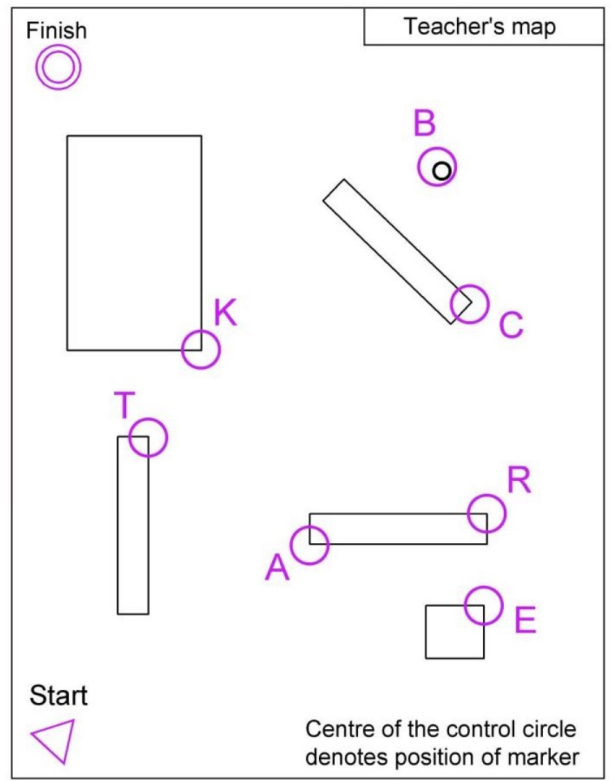
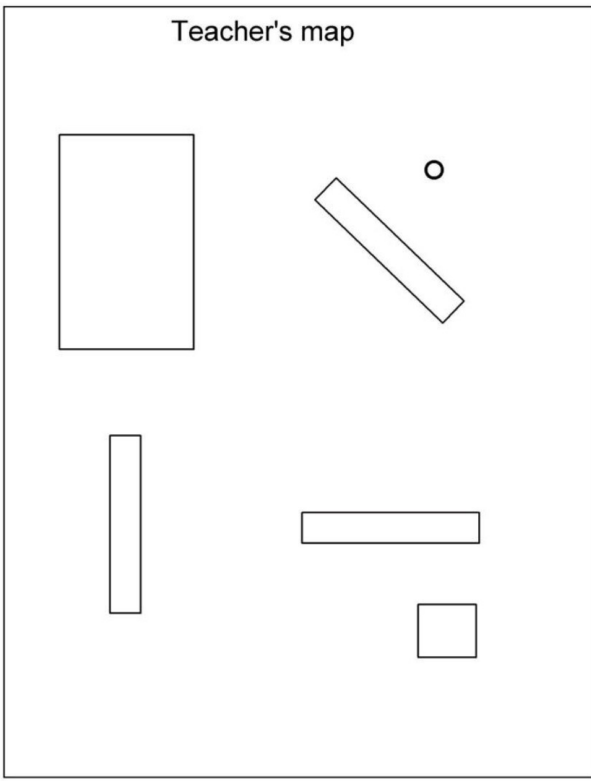
Orientate the map

Turn the map to fit the shape of the land

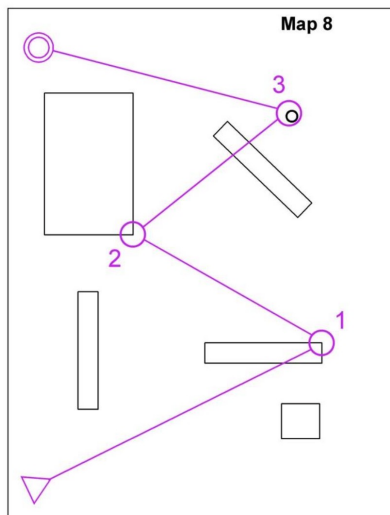
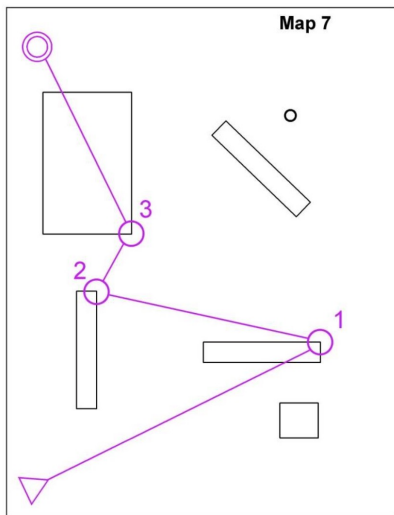
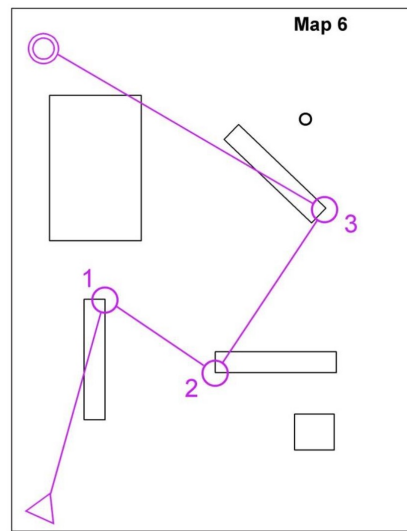
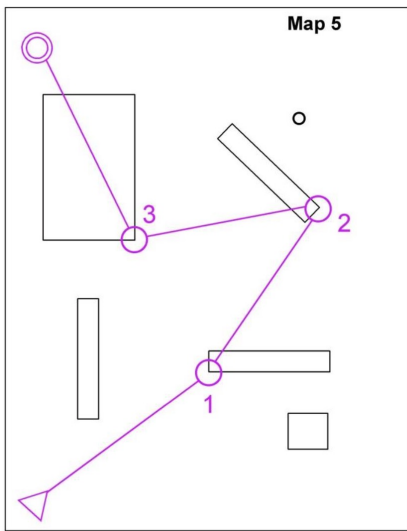


Which image has the map correctly orientated?



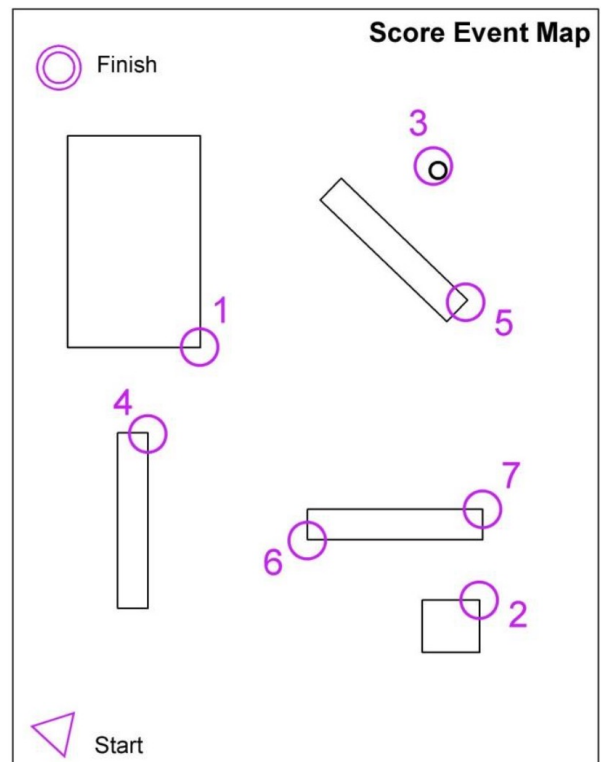


Source – www.Scottish-orienteing.org



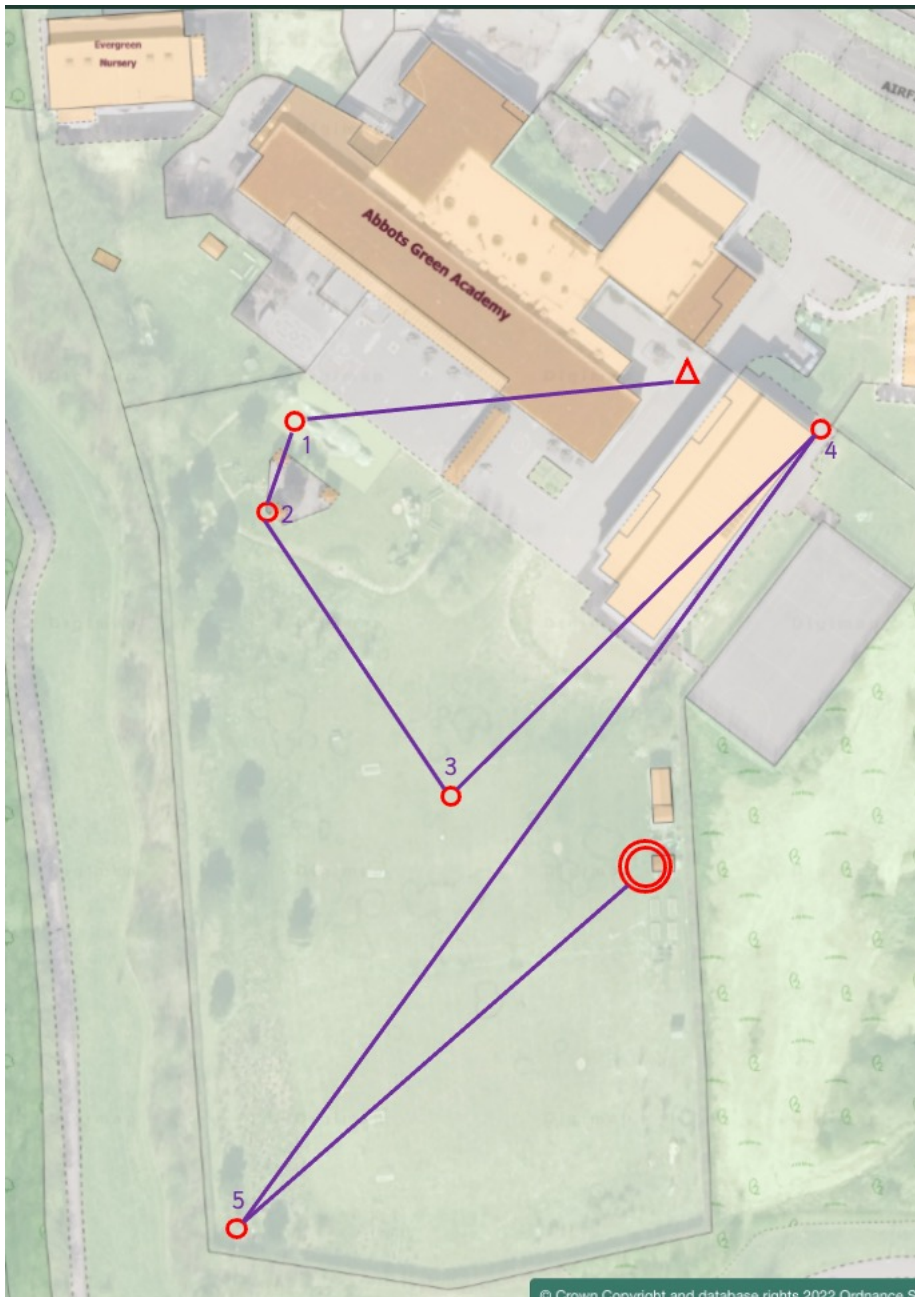
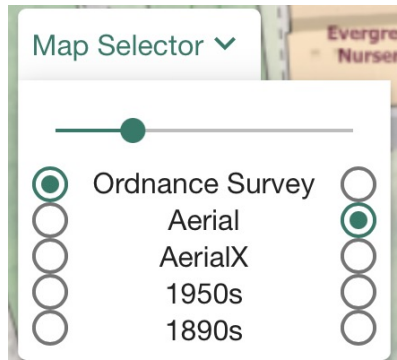
Answers for Gym Orienteering

- Map 1 E C B
- Map 2 A K B
- Map 3 T E C
- Map 4 E T B
- Map 5 A C K
- Map 6 T A C
- Map 7 R T K
- Map 8 R K B

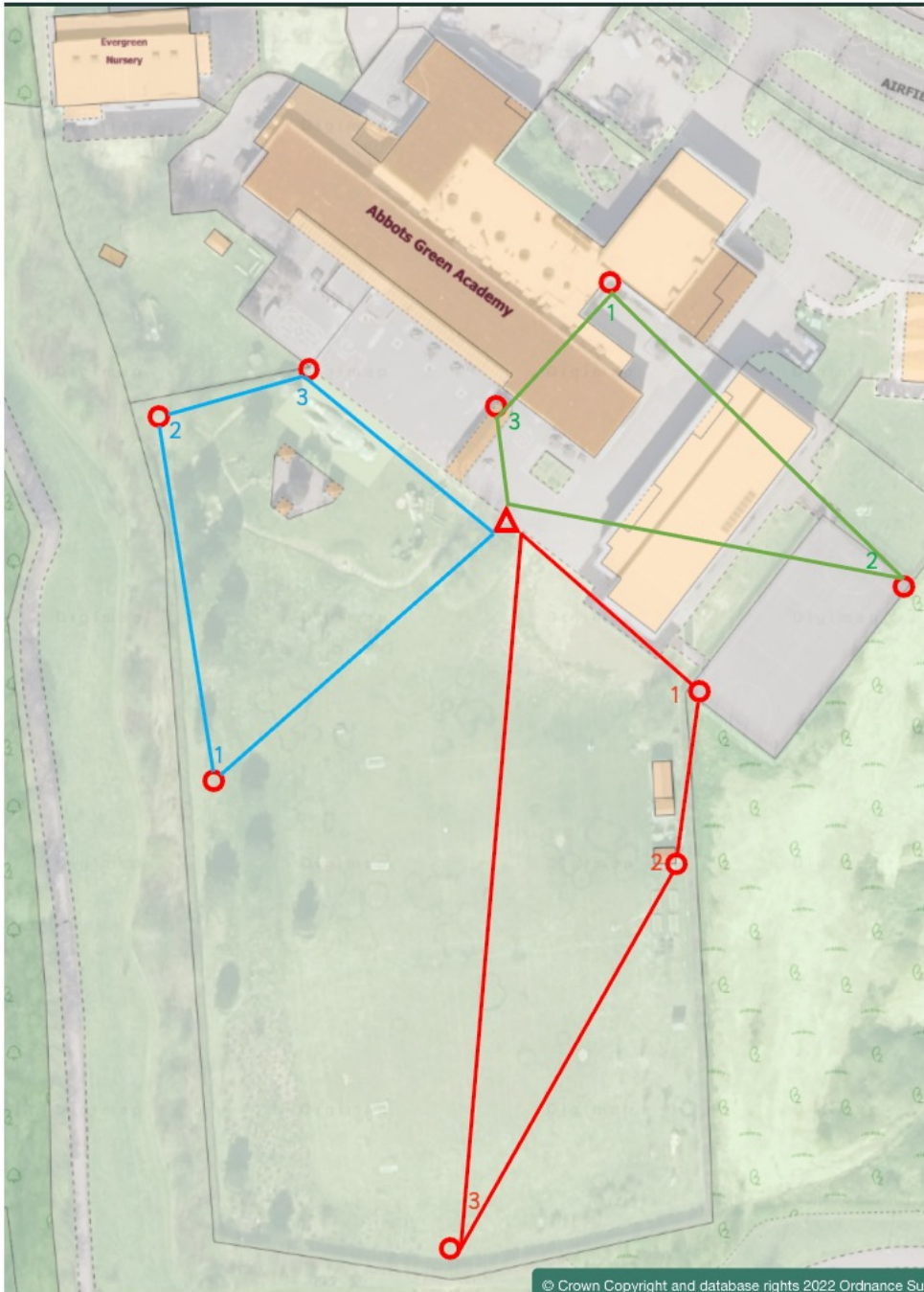
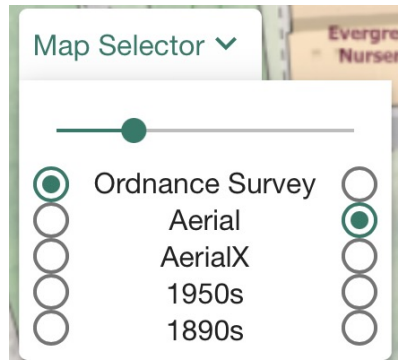


Source – www.Scottish-orienteeing.org

Use Digimap for Schools. Set the map selector to a blend between Ordnance Survey and Aerial

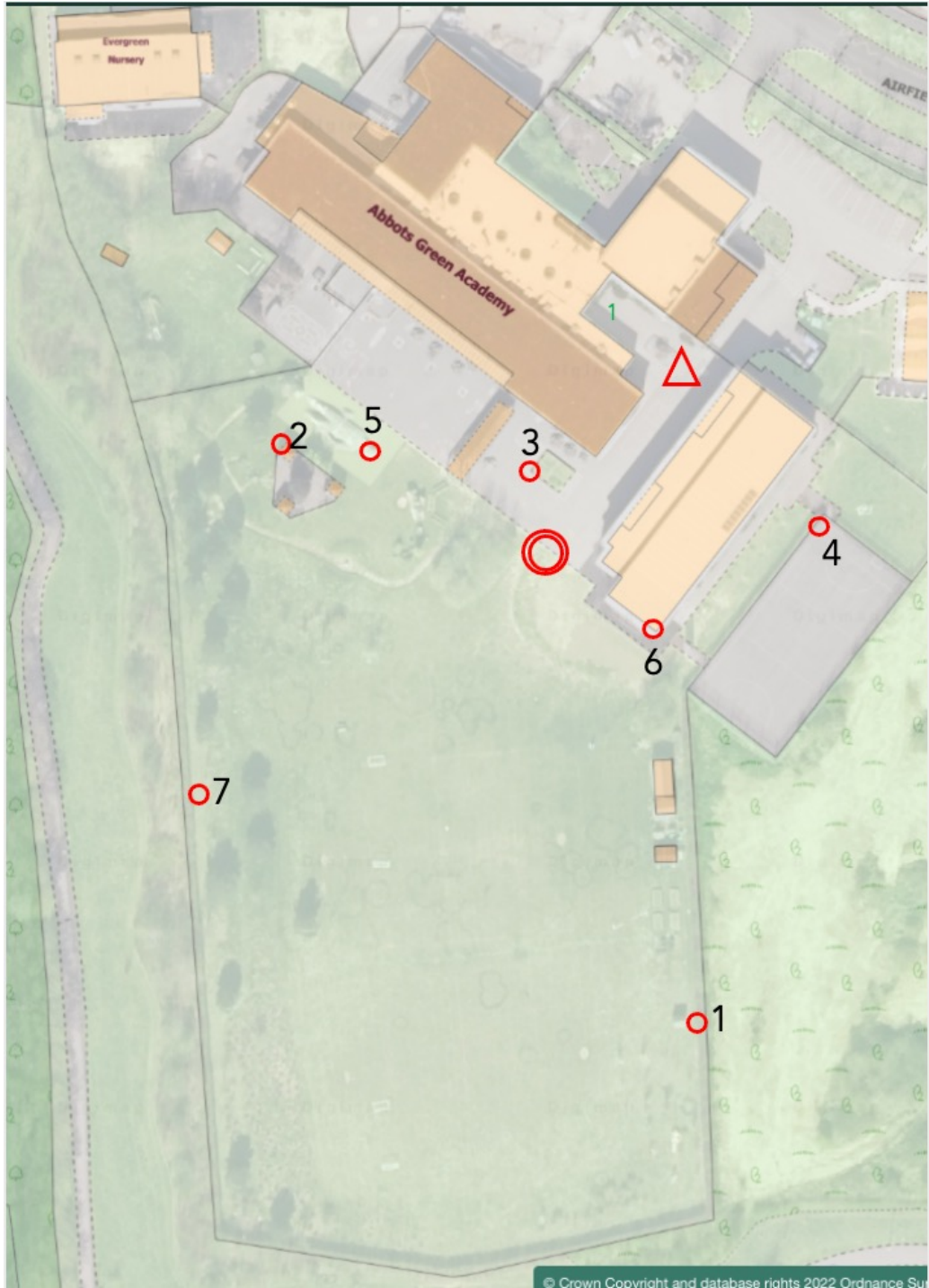
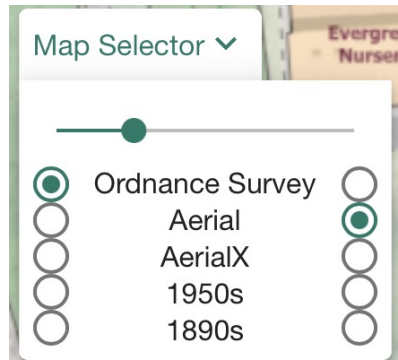


Use Digimap for Schools. Set the map selector to a blend between Ordnance Survey and Aerial



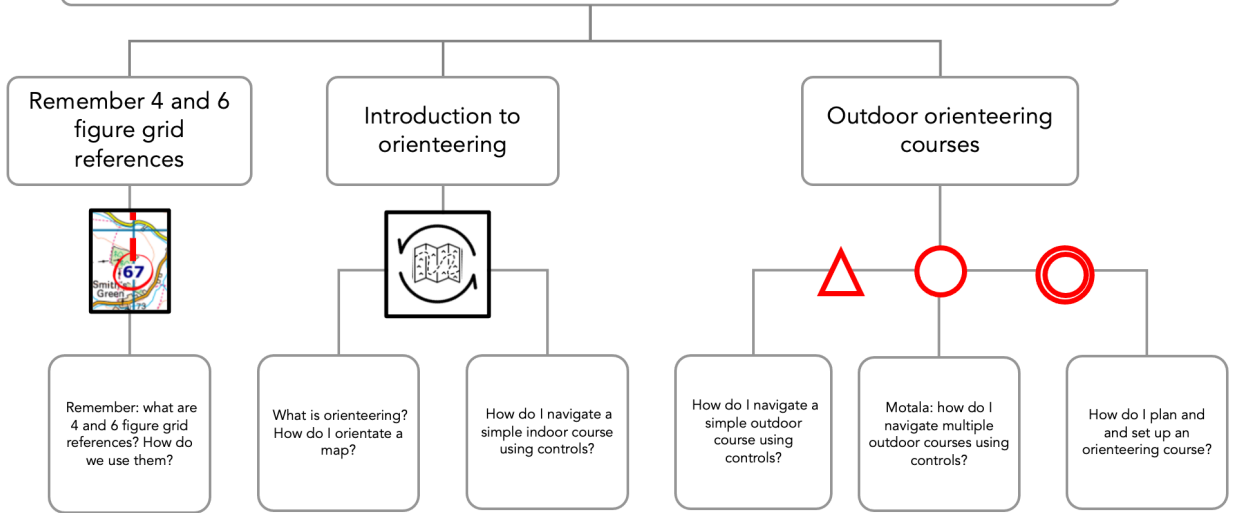
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Use Digimap for Schools. Set the map selector to a blend between Ordnance Survey and Aerial



GEOGRAPHICAL SKILLS AND FIELDWORK

Orienteering map skills and navigation



GEOGRAPHICAL SKILLS AND FIELDWORK

Orienteering map skills and navigation

