



YORKSHIRE 2019

UCI ROAD WORLD CHAMPIONSHIPS



In September 2019 the world's best cyclists are coming to Yorkshire to compete in the UCI Road World Championships. This will be the first time that Britain has hosted the UCI Road World Championships since 1982.

Yorkshire is aiming to deliver the most inclusive, innovative and inspiring UCI Road World Championships ever.

This toolkit includes a wealth of easy ideas to get your students involved in the action and excitement of the big event.

The UCI Road World Championships is:

- the annual world championships for bicycle road racing
- the pinnacle event in the international road cycling calendar
- organised by the Union Cycliste Internationale (UCI) – the worldwide governing body of cycling.

There will be:

- men's and women's races, across three age groups: Junior (age 17-18), Under 23 and Elite
- Team Time Trial Mixed Relay Races, Individual Time Trials and Road Races.

Yorkshire 2019 Para-Cycling International

For the very first time, a Para-cycling race will also take place alongside the UCI Road World Championships.

Using this toolkit

- Yorkshire 2019 provides the perfect opportunity to increase your students' interest and participation in cycling as well as encouraging them to get involved with the event itself.
- This Secondary teacher toolkit contains an **Introductory PowerPoint presentation** and 10 cycling-inspired activity ideas to use with students.
- The activities have strong links with English, Science, Maths, History, Geography and Art providing a wide range of options across the curriculum.
- Using this resource is a great way to inspire, motivate and help young people to engage in this once in a lifetime event in their county.

The UCI Road World Championships is happening in September, but most activities in this Secondary teacher toolkit can be used at any time, so why not try one today!

INTRODUCE THE UCI ROAD WORLD CHAMPIONSHIPS TO STUDENTS

The **Introductory PowerPoint presentation** explains what the UCI Road World Championships is, introduces the cyclists and the kit they'll be using, shows students where they can go to see the races, and what to expect on the day. It also gives them some ideas about how they can get involved.

This presentation can be used in class or an assembly. It works as a stand-alone resource or provides the perfect introduction to any of the other activities in this toolkit.

USE THE 10 WAYS TO CELEBRATE ACTIVITIES

Use one or more of the **10 ways to celebrate activities** to get your class or whole school involved in the action.

1

Bicycle art

ART:

Celebrate cycling by evaluating and creating art

2

Welcome to Yorkshire!

GEOGRAPHY:

Create and execute a marketing plan to encourage people to experience Yorkshire

3

Take a ride back in time

HISTORY:

Explore how bicycles have developed over time

4

Cycle poetry

ENGLISH:

Write poems to convey the excitement of the UCI Road World Championships

5

Competition: 'Support the cyclists' banner making

ENGLISH / ART:

Create a banner to support the UCI Road World Championships

6

Spectator scavenger hunt!

CROSS-CURRICULAR / PHYSICAL EDUCATION:

Explore the sights and sounds of the UCI Road World Championships with a fun scavenger hunt

7

Competition: What makes a good spectator? Poster

ART / DESIGN AND TECHNOLOGY:

Design a poster to inform the public how to be a good spectator

8

Bicycle awareness day

CROSS-CURRICULAR / PHYSICAL EDUCATION:

Raise awareness of the benefits of cycling

9

Exploring drafting

SCIENCE:

Explore how cyclists aim to be aerodynamic

10

Riders and air resistance

MATHS:

Understand how a rider's air resistance is a real-life example of a quadratic relationship

1: BICYCLE ART

Subject: **Art**

Ages: **Key Stage 3**

Time: **Approx. 60 minutes, plus research time**

Outcome: **To celebrate cycling through art.**



Art using bicycle parts

- Introduce the idea of using everyday objects in art. Ask students if they can suggest any examples.
- Explain that some artists have used bicycle parts to create works of art. Ask students to research one or more of the following artworks:
 - Marcel Duchamp's 'Roue de bicyclette'
 - Pablo Picasso's 'Bull head'
- For each work of art, students should consider:
 - How it makes them think or feel?
 - How has the artist achieved this?
 - Is it anything to do with cycling?
 - Why did the artist choose to use parts of bicycles?

Bicycles in art installations

- Explain that an art installation is a mixed-media construction usually designed for a specific place and / or for a temporary period of time. Ask students to make suggestions as to the purpose of an art installation, for example, to celebrate or remember an important local or national event, make people think, or bring people together.
- Show students pictures of Ai Weiwei's 'Forever bicycles' art installations.
- Explain that Ai Weiwei was born in China, where bicycles have traditionally been very important. Bikes represent freedom and movement, but these bikes are stuck together. What might Weiwei be trying to make us think or feel?
- Is it anything to do with cycling? Ask students to discuss this question in pairs. Can they be prepared to explain their answer?

Create your own artwork celebrating the UCI Road World Championships

- Organise students into groups and assign a word associated with cycling to each e.g. movement, motion, speed, acceleration, exhilaration, resilience.
- Encourage groups to use their cycling word to design their own artwork celebrating cycling, either on paper or using junk modelling materials, and present it to the class.
- If short on time, suggest that students can create a montage based on pop art.



For challenge: students could try and bring their designs to life or incorporate bicycle parts in their art. They could explain their use of a specific part, for example what it does in a bicycle and why they chose to incorporate it.

2: WELCOME TO YORKSHIRE!

Subject: **Geography**

Ages: **Key Stage 3**

Time: **Approx. 60 minutes**

Outcome: **To create and execute a marketing plan to encourage people to experience Yorkshire.**



What makes Yorkshire special?

- Explain to students that in September, people from around the world will be travelling to Yorkshire to watch the UCI Road World Championships.
- Have a class discussion about your local area. What makes it special? Why do people like to visit? (You may wish to focus on Yorkshire as a whole, or your specific area.)

Welcome the world to Yorkshire

- Ask students to think about the benefits Yorkshire could gain from an influx of visitors. Share ideas with the class.
- In groups, ask students to brainstorm some ideas on how to capture the attention of tourists and to create a simple marketing plan to increase attendance, both for the championships and for visitors to the region in general. To help them create the plan, you could put the following headings and prompt questions on the board.
 - **Know your area:** *How could you find out more?* Can students find three interesting facts about the area or famous people from Yorkshire (Lizzie Deignan (cyclist), the Brontë sisters (novelists), Jessica Ennis-Hill (athlete), David Hockney (artist), Ted Hughes (poet), Helen Sharman (astronaut).
 - Suggest students complete a survey amongst current residents to get to know their area more or amongst tourists to find out why they visit. They could then use statistics from their survey in their advertising. Alternatively, they could interview a local business owner to feature in their campaign.
 - **Target audience:** *Who are you trying to attract to the area?* People who will be participating in or watching the Championships from this country or abroad.
 - **Competitors:** *What other areas attract tourists? How you will convince them to choose Yorkshire?*
 - **Goal or objectives:** *Can you decide on a measurable goal?* For example, to increase visitors to the region by 10%.

- **Outline strategies:** *Can you include different strategies in your plan?*
For example, targeting residents in the local newspaper or on radio, and travellers from outside the area through regional magazines or tourism brochures.
- **Ways to measure success:** *How can you measure your tourism marketing efforts?*
For example, making a code or using a dedicated number for booking trips or hotels.
- Once they have created their plan, ask students to execute at least one of the items, for example a tourist guide for the local area. Alternatively, they could create a TV advertisement for the local area by filming and editing a video clip or write a script for a radio advertisement.
- Students share their brochures and/or advertisements. Talk about what makes the guides easy to read and understand. People may not read it word for word so it should be skimmable, with lots of ideas for things to do and places to see. The more “locals only” advice provided the better.
- You could also hold a class vote to choose the most compelling campaign.



For challenge: students could also look at the possible downsides to an increase in tourism during September and create an action plan to negate these.

3: TAKE A RIDE BACK IN TIME

Subject: **History**

Ages: **Key Stage 3**

Time: **Approx. 60 minutes**

Outcome: **To analyse how bicycles have developed over time and create a timeline display.**



The evolution of the bicycle

- Hold a class discussion about modern bicycles. Do students own a bicycle? What are they like? Are everyone's bicycles similar or very different?
- Explain that it has taken over 200 years of changes and improvements for the bicycle to be like it is today.

Travel in time and write a review for a historical bike

- Organise students into groups and hand out the **Take a ride back in time activity sheet** – one per group. Explain that these are all types of bicycle which have been sold to people – some are no longer used, but some are still popular today!
- In the modern world, when new products are sold people who buy them can review them online. Reviews give detailed information about the product and this helps other people decide whether they want to buy it or not.
- You may want to show example product reviews from a well-known online retailer.
- Ask each group to research the type of bicycle shown on their card and write a product review for it.
- Their review should explain:
 - what they like about it
 - what they don't like about it
 - what could be improved
 - whether they would recommend other people to buy it.
- Groups could:
 - research and use archaic language when writing reviews for older bicycles
 - design their product review to look like it is from the decade they are writing in (e.g. tea-stained newspaper article for the 1880s or review section of a website for today).
- Ask each group to present their product review to the class.

- A class bicycle timeline display could be created with the product reviews placed on their relevant decade.



For challenge: ask students to design the bike of the future and write a product review for it. How will product reviews be shared in the future – will we still be finding this sort of information on the internet, accessing it with laptops and smartphones? The only limit is students' own imaginations!



4: CYCLE POETRY

Subject: **English**

Ages: **Key Stage 3**

Time: **Approx. 60 minutes**

Outcome: **To write poems to convey the excitement of the UCI Road World Championships.**



What can you expect when you watch the UCI Road World Championships?

- Explain to students that in September, the UCI Road World Championships will be held in Yorkshire and everyone is encouraged to go and watch.
- Show students this YouTube video: <https://www.youtube.com/watch?v=YFIROPL6thY&t=141s>, as stimulus
- Ask students to close their eyes and spend a few moments imagining that they are about to take part in a cycling race. What can they see, hear, feel, smell, taste? What emotions can they feel before the race, as the race starts, as they near the finish line and after the race has finished? Ask them to suggest words to sum up these emotions, for example, anticipation, exulted, exhilaration, pride.

Poems celebrating

- Explain that a powerful way to capture an atmosphere or share emotions with others is by writing a poem.
- You could search online for the following poems to inspire your students:
 - Carol Ann Duffy's 'Translating the British, 2012', which celebrates the Olympics
 - 'From a Railway Carriage' by Robert Louis Stevenson conveys the feeling of the train's motion through the rhythm of the verse.
- Ask students what they like about the poems? How do they make them feel?

Write a poem celebrating the UCI Road World Championships

- Explain that you would like students to write their own poem celebrating the UCI Road World Championships coming to Yorkshire.
- First encourage students to think about what form their poem should take, for example, a kennings poem, a haiku or an acrostic, and to consider the different poetic devices they could use to make their poem stand out from the crowd.
- Hold a poetry reading event to allow students to read their poems aloud to the class, or the wider school. You could also hold a vote to choose the favourite poem.

5: COMPETITION: MAKE A BANNER TO SUPPORT THE CYCLISTS

Subject: **English, Art**

Ages: **Key Stage 3**

Time: **Approx. 30 minutes**

Outcome: **To create a banner showing support for the UCI Road World Championships.**



This activity is designed to be completed by students before they go and watch the UCI Road World Championships.

How does it feel to be a professional cyclist?

- Explain that cyclists participating in the UCI Road World Championships, will have been training hard for the gruelling races. Ask students to estimate how fast the cyclists will be travelling up some of Yorkshire's steepest hills. Challenge them to research how accurate their estimates are.
- Ask students to think about:
 - how cyclists may feel at the start of the race, during the middle, and at the end of the race?
 - how supporters can help?
- Show examples of banners used in various events, e.g. the London Marathon. Why do supporters bring them to watch sporting events?
- In groups, ask students to find examples of banners for themselves and to discuss what they like about them. What makes them so powerful?

Make a banner to support the cyclists

- Students create their own supporters' banner using materials and themes of their own choice.
- You may wish to hold a class vote to choose the best banner to submit to the competition. To enter the competition, email a photo of students' banner(s) to **competition@yorkshire2019.co.uk**. Prizes will be sent out to the winner of each school.
- Encourage students to take their banners to watch a cycle race with their families or as part of a class trip.

THE BEST BANNER FROM EACH SCHOOL WILL WIN A PRIZE!

6: SPECTATOR SCAVENGER HUNT!

Subject: **Cross-curricular / Physical Education**

Ages: **Key Stage 3**

Time: **Approx. 60 minutes**

Outcome: **Explore the sights and sounds of the UCI Road World Championships.**



This activity is designed to be completed by students when they go and watch the UCI Road World Championships.

Before going to watch the event

- Before the event, explain to students that they will see and hear a lot of things while they are watching the UCI Road World Championships.

You can run through the items in detail by showing the **Introductory PowerPoint presentation**.

At the event

- Hand out the **Spectator scavenger hunt activity sheet** which students can complete while they watch the race.

After the event

- Compare what students found. Who found the most things?
- Have a class discussion about the races they saw – was there anything that surprised them? Did they spectate in different locations? What were the differences? Did the location change the number of items found on the scavenger hunt?

7: COMPETITION: WHAT MAKES A GOOD SPECTATOR? POSTER

Subject: **Art / Design and Technology**

Ages: **Key Stage 3**

Time: **Approx. 60 minutes**

Outcome: **To design a poster to inform the public how to be a good spectator.**



This activity is designed to be completed by students when they go and watch the UCI Road World Championships.

What makes a good spectator?

- Use the **Introductory PowerPoint presentation** to show students what they can expect to see if they go to watch the Championships.
- As a class, discuss why it is important to have spectators at cycling events (to motivate the competitors, fun to watch).
- Explain that while there are lots of good things about being a spectator there are also some negative things spectators can do. Can students think of any? (Litter, getting in the way of the cyclists, heckling cyclists.)

Create a poster

- Explain to students that the organisers of the 2019 UCI Road World Championships need their help to teach people how to be good spectators.
- They should design an eye-catching poster which clearly tells people what they should and shouldn't do when they go and watch the events. Encourage students to use their design skills, be creative and to communicate their ideas quickly and effectively. You may want to collect some different poster examples for students to evaluate before they begin. Students could use technology and they should be prepared to explain their choice of medium.
- You may wish to hold a class vote to choose the best poster to submit to the competition. To enter the competition, email a photo of students' banner(s) to **competition@yorkshire2019.co.uk**. The best poster designs will win a prize which will be sent to schools.

THE BEST POSTER FROM **EACH SCHOOL** WILL WIN A **PRIZE!**

8: CYCLING AWARENESS DAY

Subject: **Cross-curricular / Physical Education**

Ages: **Key Stage 3, Key Stage 4**

Time: **Variable**

Outcome: **To raise awareness of the benefits of cycling.**



Get your whole school excited about cycling by holding a cycling awareness day.

During the day you could use activities from this teacher toolkit as well as some of these whole-school activities:

- Hold a cycling or scooter relay event – this could be sponsored by parents.
- See how many students can cycle to school for that day.
- Encourage parents to cycle to work that day.
- Ask students to create a bicycle safety pack, including a list of road safety rules.
- Decorate the school with posters promoting cycling and the UCI Road World Championships.
- Raise money for charity by holding a sponsored static cycle challenge (static bicycles required). Ask parents to sponsor students to reach a set distance e.g. 10 miles. Classes can take it in turns to help reach the distance.
- Make your cycling awareness day into a school competition. Display a leader board of cycling-related activities, give out prizes at the end of the day for the best class or students.
- Ask a local cycling safety organisation if they will come in to check students' bikes and label them with anti-theft markings.

9: EXPLORING DRAFTING

Subject: **Science**

Ages: **Key Stage 3, Key Stage 4**

Time: **Approx. 60 minutes**

Outcome: **To explore how cyclists aim to be aerodynamic.**



For the activity, you will need: A4 strips of card, small toy cars, sticky tape, hair dryer.

Forces

- Ask students to imagine they are a cyclist during a race. What forces are at work? Encourage students to sketch the forces on a cyclist as they pedal towards a possible podium place.
- Discuss how riders could minimise air resistance, the force trying to slow them down as they race, for example crouching down low, wearing streamlined helmets.

Which is the most aerodynamic?

- Explain to students that they are going to investigate this air resistance further and how cyclists could combat it.
- Give pairs of students some strips of card (A4 sheets cut into three lengthways strips are ideal) and some small toy cars to act as 'riders'.
- Ask students to think about what shapes they could bend or fold the card into to explore how these different shapes affect the air resistance on the riders? Some suggested shapes are provided on the **Exploring drafting activity sheet**.
- Students form different-shaped 'riders' by wrapping their strips around the toy cars and fixing them using tape or staples.
- Explain how students can test their 'riders' for air resistance using a hair dryer:
 - place the 'rider' near the edge of a smooth table
 - hold the hair dryer 15 - 30cm from the 'rider' (test first to find the best distance)
 - turn on the hair dryer for the same time, e.g. 3 seconds
 - measure how far each 'rider' moves.
- The more force acting on it, the further a rider will move because it is less aerodynamic.
- Which 'rider' moves the least distance because it has the least force acting on it? This is the most aerodynamic.

Why the peloton?

- Ask if students know the name for the tightly-packed group of cyclists in a race: the 'peloton'. Can students explain why the riders in the peloton ride so close behind one another?
- Students repeat the investigation, this time using two copies of their most aerodynamic 'rider', holding the front 'rider' in place while placing another 'rider' directly behind it.
 - start with the second rider almost touching the front rider
 - turn on the hairdryer for a few seconds as before and see how far the second rider moves back
 - increase the distance by 5 or 10 cm each time.
- Encourage students to use their results to discuss how a cyclist, by positioning themselves directly behind another rider reduces the air resistance acting on them, making it easier to cycle. This is called 'drafting'. This explains why riders group so closely together during a race!

10: RIDERS AND AIR RESISTANCE

Subject: **Maths**

Ages: **Key Stage 3, Key Stage 4**

Time: **Approx. 60 minutes**

Outcome: **To explore how the air resistance on a rider is a real-life example of a quadratic relationship.**



- Ask students to imagine they are a cyclist during a race. Why does pedalling get harder, the faster the rider goes? Identify that one reason is air resistance, which slows cyclists down.
- Give students the **Riders and air resistance activity sheet**. Explain that two riders are at the front of the 'peloton' (the group of tightly-packed riders in a race). The activity sheet contains data about the air resistance that's acting on each rider depending on how fast they go.
- Challenge students to plot graphs and:
 - explain the relationship between speed and air resistance
 - explain the relationship between the air resistance on rider 1 and rider 2.
- Students draw the graphs and discuss what each one can tell them:
 - They are quadratic graphs: the air resistance on the riders varies as the square of their speed.
 - Both graphs = 0 when the speed = 0, so there is no air resistance when the riders are at rest.
 - Rider 2's air resistance is half that of rider 1. This suggests that rider 2 finds it much

easier to ride at the same speed, as long as they stay close behind rider 1!

- Prompt students to discuss how positioning themselves directly behind the rider in front reduces the air resistance acting on a cyclist. This is called 'drafting'. This explains why riders group so closely together during a race!

For extra challenge, explore these scenarios and ask students to sketch graphs to illustrate and explain them. Some students could write an equation or discuss its form.

- The two riders are cycling into a headwind, so the air resistance against them is 100N even at rest.
- The two riders are cycling with a tailwind, so the air resistance against them is reduced by 100N, even at rest.
- Rider 2 has fallen back a little and is now cycling a few metres behind rider 1. The air resistance on them is now $\frac{4}{5}$ of that on rider 1.



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