

# PRIMARY STEM PROJECT

# UNIT 1



# TEAMWORK

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# TEACHERS' NOTES

# UNIT 1:

## TEAMWORK

In this unit pupils will be introduced to the Denford Primary STEM Project. Pupils will be divided into mixed ability teams of 3-4 team members and will decide upon a structure for their team.

### LEARNING OUTCOMES

**Pupils will aim to**

- Have an understanding and overview of the project
- Understand how individual team roles contribute to team structure
- Adopt a suitable team structure
- Recognise and understand what a logo is
- Understand basic colour mixing

**Most pupils will be able to**

- Evaluate how a person specification relates to a whole team
- Identify criteria for selecting an individual role within a team
- Research company logos
- Successfully mix secondary colours

**Some pupils will be able to**

- Analyse and evaluate personal strengths and skills, comparing these to a job function, and prioritise the allocation of team roles
- Take on a leadership role within their team
- Have an understanding of car logo design
- Understand the relationship between primary and secondary colours

**Pupil differentiation**

Learning differentiation will naturally occur as each team member takes on a role and recognises, their own strengths as well as those in others.


Pupils will also benefit from team-led learning experience and collaborative learning.

## LESSON 1 CREATING A TEAM

<p><b>LEARNING OBJECTIVES</b></p> <p>Pupils will:</p> <p>Become familiar with the project as a whole and begin to recognise the strengths that are needed to build a successful team.</p>	<p><b>GROUP</b></p>
<p><b>RESOURCES</b></p> <p><b>Worksheets</b></p> <p>WORKING AS A TEAM TEAMWORK PROJECT BRIEF MEET THE TEAM</p> <p><b>Video</b></p> <p><a href="#">SCHOOL DEMONSTRATION</a></p>	<p><b>EQUIPMENT</b></p> <p>*Class member pictures *Writing Tools *Drawing Equipment *Camera &amp; Printer *Scissors *Glue</p>
<p><b>RELATED WORKSHEETS</b></p> <p>ICEBREAKER FROSTBITE DRAWING PORTRAITS RULES AND REGULATIONS</p>	
<p><b>IN PREPARATION</b></p> <p>Pupils will need a photo of themselves to add to worksheet <b>MEET THE TEAM</b>. These could be taken in advance and printed out or taken during the lesson. Alternatively, pupils could be given time to produce a small self-portrait.</p>	
<p><b>STEPS</b></p> <ul style="list-style-type: none"> <li>• Start the project introduction by showing the whole class the <b>SCHOOL DEMONSTRATION</b> video of the cars racing.</li> <li>• Explain to pupils that they are to become members of a race team and are tasked to research, design, manufacture, test and modify a racing car that will be propelled down a track using compressed air.</li> <li>• The goal is not only to be the fastest car in a knock out competition at the end of the project, but also to present a body of work that demonstrates their team's development process.</li> <li>• Arrange pupils into teams of 3 or 4.</li> <li>• Hand out &amp; complete worksheets <b>WORKING AS A TEAM &amp; TEAMWORK</b></li> <li>• Hand out worksheet <b>PROJECT BRIEF</b>. It is advisable at this stage to show pupils a copy of the judging <b>RULES AND REGULATIONS</b>.</li> <li>• Read through the Project Brief with the class to ensure understanding.</li> <li>• Hand out and complete worksheet <b>MEET THE TEAM</b>.</li> <li>• It may be helpful for teams to work on loose paper. Keeping this work together in a team folder will allow sheets to be added as the project progresses. This should then be put together at the end of the project to create a portfolio of work.</li> <li>• Pupils should keep individual work in a separate folder.</li> </ul>	
<p><b>PLENARY</b></p> <p>Review worksheets <b>WORKING AS A TEAM &amp; TEAMWORK</b> with the whole class. Discuss the pros and cons of working as a team. How can problems be satisfactorily resolved within a team?</p>	
<p><b>ENRICHMENT</b></p> <p>This part of the project will enable the more confident student to take on a leadership role and encourage the less confident pupils to grow in confidence and learn from their peers.</p>	

## LESSON 2

### WORDS & CARS

<p><b>LEARNING OBJECTIVES</b></p> <p>Pupils will</p> <ul style="list-style-type: none"> <li>• Start to develop a technical vocabulary and understand how to look up the meanings and spellings of words.</li> <li>• Expand specialist vocabulary concerning cars and car parts.</li> </ul>	<p><b>INDIVIDUALS</b> <b>GROUP</b></p>
<p><b>RESOURCES</b></p> <p>WORKSHEETS GLOSSARY CAR LOGOS</p>	<p><b>EQUIPMENT</b></p> <ul style="list-style-type: none"> <li>*Microsoft WORD </li> <li>*Writing Tools</li> <li>*Dictionary</li> <li>*Thesaurus</li> <li>*Internet access</li> <li>*Scissors</li> <li>*Glue</li> </ul>
<p><b>RELATED WORKSHEETS</b></p> <p>ADITIONAL GLOSSARY PAGE</p>	
<p><b>IN PREPARATION</b></p> <p>Pupils will need access to images of car logos. This could be researched online or using magazines. Alternatively, it could be set as a homework. Pupils could draw a car logo by copying their family car logo or another accessible vehicle.</p>	
<p><b>STEPS</b></p> <ul style="list-style-type: none"> <li>• Explain how to look up word meanings and spellings using a physical dictionary and an online dictionary. Explain what a Thesaurus is and how it works. This could be demonstrated using Microsoft WORD or another word processing package, in addition to using physical books.</li> <li>• Using the dictionary and thesaurus, ask pupils to find 5 new words relating to cars, driving, racing or going fast. These could be added to a whole class list with each pupil adding their favourite new word and explaining what it means.</li> <li>• These words could then be added to the <b>GLOSSARY</b>.</li> <li>• Hand out <b>CAR LOGOS</b> worksheet. These could be completed individually or as a team. Each team member must contribute at least one logo.</li> <li>• Pupils will need access to the internet for research in order to complete <b>CAR LOGOS</b>. This may be set as a homework to be completed outside of the lesson if internet access is not available.</li> </ul>	
<p><b>PLENARY</b></p> <p>Review new words learned and recap on spellings on the board to give teams a chance to add to their glossary words that other teams have included, encouraging shared learning.</p>	
<p><b>ENRICHMENT</b></p> <p>More able pupils could look further into car logos and their design development. Researching how and why designs have changed over the years.</p>	

## LESSON 3

## COLOURS

<p><b>LEARNING OBJECTIVES</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• Be introduced to basic colour mixing</li> <li>• Explore the relationship between colours and emotions</li> </ul>	<p><b>INDIVIDUALS</b></p>
<p><b>RESOURCES</b></p> <p>WORKSHEETS</p> <p>    COLOUR MIXING</p> <p>    SPRING TIME</p> <p>POWERPOINT</p> <p>    EMOTIONAL COLOURS</p> <p>VIDEOS</p> <p><a href="#">AUTUMN TIME BY CHERYL SANDBERG</a></p>	<p><b>EQUIPMENT</b></p> <p>*Painting Equipment</p> <p>*Writing Tools</p>
<p><b>ADDITIONAL RESOURCES</b></p> <p>    MAKING A MOOD BOARD</p> <p>    COLOUR WHEEL</p> <p>    TONES, TINT &amp; HUES</p> <p>    COLOUR THEORY</p> <p>    AUTUMN TIME</p> <p>    MAKING A COLOUR WHEEL</p>	
<p><b>IN PREPARATION</b></p> <p>Prepare print outs of Autumn colours poem and information on Cheryl Sandberg</p> <p>Look at worksheet MAKING A COLOUR WHEEL. This could be done as an individual task or on a larger scale as a class task. Pupils could be asked to collect coloured items before the lesson or to start a collection to be used later.</p>	
<p><b>STEPS</b></p> <p>This lesson could easily be split into two sessions</p> <p><b>Session 1</b></p> <ul style="list-style-type: none"> <li>• Introduce colour mixing. Pupils could try to predict what colours will be made by mixing two primary colours together. Complete worksheet <b>COLOUR MIXING</b>.</li> </ul> <p><b>Session 2</b></p> <ul style="list-style-type: none"> <li>• Start with introduction PowerPoint <b>EMOTIONAL COLOURS</b> followed by a group discussion on colour and emotion. How do colours make you feel?</li> <li>• Read through the poem <b>AUTUMN TIME</b>. Highlight all the references to colour. Choose another season. Create a mood board about that season. Write a poem about it, based around colours and emotions and feelings. The use of similes and metaphors could be included in the poetry lesson.</li> </ul>	
<p><b>PLENARY</b></p> <p>Were the colour mixing predictions correct? Would anyone like to read out their poem?</p> <p>Recap on descriptive colours. Think about how colours may be used to describe a Formula One race. e.g. The <b>slate grey</b> of the tarmac. The <b>rainbow</b> of the crowd.</p> <p>Can you think of a colour to describe a feeling of speed, the noise of the cars etc. Watch a video clip of a Formula One race. Construct a collective poem, using suggestions from the whole class, based upon a Formula One race.</p>	
<p><b>ENRICHMENT</b></p> <p>Additional worksheet- <b>COLOUR WHEEL</b> could be used to replace <b>COLOUR MIXING</b> sheet. Other addition worksheet- <b>TINTS, TONES &amp; HUES</b> will add depth to knowledge.</p> <p><b>Extension work:</b> Further exploration of <b>COLOUR THEORY</b> looking at complementary and contrasting colours and their uses in advertising.</p>	

## LESSON 4 EVALUATION

<p><b>LEARNING OBJECTIVES</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• Reflect upon the work that they have done</li> <li>• Consider positive ways to make improvements to their work.</li> </ul>	<p><b>INDIVIDUALS</b></p>
<p><b>RESOURCES</b></p> <p>WORKSHEETS SUMMARY &amp; EVALUATION WORD SEARCH</p>	<p><b>EQUIPMENT</b></p> <p>*Writing Tools</p>
<p><b>ADDITIONAL RESOURCES</b></p> <p>BLANK EVALUATION SHEET</p>	
<p><b>IN PREPARATION</b></p> <p>Ensure that all previous work is available to remind pupils what they have done so far.</p>	
<p><b>STEPS</b></p> <ul style="list-style-type: none"> <li>• Evaluation could be carried out either individually, in pairs, or as a team. It is suggested that, initially, this process should be done by individual pupils to ensure that all pupils have an understanding of useful self-evaluation.</li> <li>• Use either <b>SUMMARY &amp; EVALUATION</b> or <b>BLANK EVALUATION</b> worksheets.</li> <li>• Read through evaluation sheet as a class. Encourage the use of newly acquired vocabulary when discussing the project and when completing the evaluation sheet.</li> </ul>	
<p><b>PLENARY</b></p> <p>Review the work completed so far and what they have learned. How well have the pupils worked as teams. Have any problems arisen? How can they be addressed moving forward?</p>	
<p><b>ENRICHMENT</b></p> <p>Extension work: Worksheet <b>WORD SEARCH</b></p> <p>More able pupils could create their own word search using one of the following topics</p> <p style="text-align: center;"><b>COLOUR &amp; EMOTIONS</b> <b>CARS</b></p> <p>This would also reinforce the new vocabulary and could then be completed by others in their team/class to further consolidate new vocabulary.</p>	