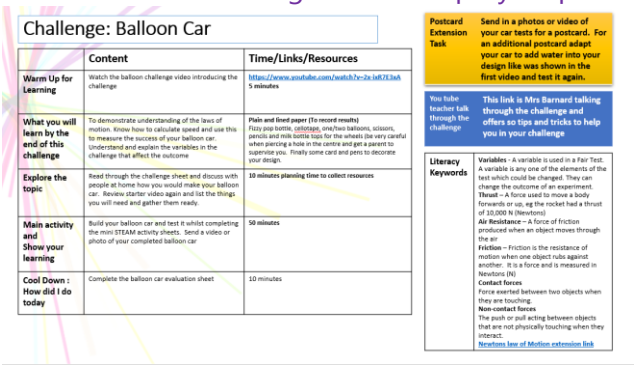
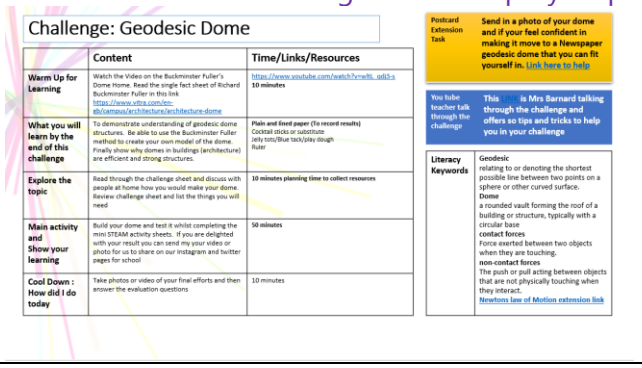
Half Term 5 April – May

Year 9 Technology STEAM challenges

Lesson	Instructions	Resources	Curriculum
1	Steam Balloon Car challenge open the pdf file and follow the challenge lesson step by step  Challenge: Balloon Car Content / Time/Links/Resources Warm Up for Learning: Watch the balloon challenge video introducing the challenge — https://www.youtube.com/watch?v=2s-ioR7E3oA 5 minutes What you will learn by the end of this challenge: To demonstrate understanding of the laws of motion. Know how to calculate speed and use this to measure the success of your balloon car. Understand and explain the variables in the challenge that affect the outcome — Plain and lined paper (To record results) Fizzy pop bottle, cellotape, one/two balloons, scissors, pencils and milk bottle tops for the wheels (be very careful when piercing a hole in the centre and get a parent to supervise you. Finally some card and pens to decorate your design. Explore the topic: Read through the challenge sheet and discuss with people at home how you would make your balloon car. Review starter video again and list the things you will need and gather them ready. — 10 minutes planning time to collect resources Main activity and Show your learning: Build your balloon car and test it whilst completing the mini STEAM activity sheets. Send a video or photo of your completed balloon car — 50 minutes Cool Down : How did I do today: Complete the balloon car evaluation sheet — 10 minutes Postcard Extension Task: Send in a photos or video of your car tests for a postcard. For an additional postcard adapt your car to add water into your design like was shown in the first video and test it again. You tube teacher talk through the challenge: This link is Mrs Barnard talking through the challenge and offers so tips and tricks to help you in your challenge Literacy Keywords: Variables - A variable is used in a Fair Test. A variable is any one of the elements of the test which could be changed. They can change the outcome of an experiment. Thrust – A force used to move a body forwards or up, eg the rocket had a thrust of 10,000 N (Newtons) Air Resistance – A force of friction produced when an object moves through the air Friction – Friction is the resistance of motion when one object rubs against another. It is a force and is measured in Newtons (N) Contact forces Force exerted between two objects when they are touching. Non-contact forces The push or pull acting between objects that are not physically touching when they interact. Newtons law of Motion extension link	**PDF file** **Video explaining challenge** **Plain and lined paper (To record results)** Fizzy pop bottle, cello tape, one/two balloons, scissors, pencils and milk bottle tops for the wheels (be very careful when piercing a hole in the centre and get a parent to supervise you. Finally, some card and pens to decorate your design.	Discover Explore Share Innovate Using knowledge of learning to date across Technology alongside science maths and art.
2	Steam Geodesic Dome challenge open the pdf file and follow the challenge lesson step by step  Challenge: Geodesic Dome Content / Time/Links/Resources Warm Up for Learning: Watch the Video on the Buckminster Fuller's Dome Home. Read the single fact sheet of Richard Buckminster Fuller in this link https://www.ultra.com/en-gb/campus/architecture/architecture-dome — https://www.youtube.com/watch?v=wRL_odi3-s 10 minutes What you will learn by the end of this challenge: To demonstrate understanding of geodesic dome structures. Be able to use the Buckminster Fuller method to create your own model of the dome. Finally show why domes in buildings (architecture) are efficient and strong structures. — Plain and lined paper (To record results) Cocktail sticks or substitute Jelly tots/Blue tack/play dough Ruler Explore the topic: Read through the challenge sheet and discuss with people at home how you would make your dome. Review challenge sheet and list the things you will need — 10 minutes planning time to collect resources Main activity and Show your learning: Build your dome and test it whilst completing the mini STEAM activity sheets. If you are delighted with your result you can send my your video or photo for us to share on our Instagram and twitter pages for school — 50 minutes Cool Down : How did I do today: Take photos or video of your final efforts and then answer the evaluation questions — 10 minutes Postcard Extension Task: Send in a photo of your dome and if your feel confident in making it move to a Newspaper geodesic dome that you can fit yourself in. Link here to help You tube teacher talk through the challenge: This link is Mrs Barnard talking through the challenge and offers so tips and tricks to help you in your challenge Literacy Keywords: Geodesic relating to or denoting the shortest possible line between two points on a sphere or other curved surface. Dome a rounded vault forming the roof of a building or structure, typically with a circular base contact forces Force exerted between two objects when they are touching. non-contact forces The push or pull acting between objects that are not physically touching when they interact. Newtons law of Motion extension link	**PDF file** **Video explaining challenge** **Plain and lined paper (To record results)** Cocktail sticks or substitute Jelly tots/Blue tack/play dough Ruler	

Please email any queries and completed work to Mrs Barnard

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