Y3&4 – Lesson Plan 3

Can we make fireworks underwater?

Aim:	Key Words:	Preparation:
To understand how the density of different liquids affect the interactions they have on one another.	• less dense • volume • heavier • diffuses	• warm water • oil • a tall glass • food colouring

Prior Learning: how buoyancy is linked to the density of water and the mass of an object.

WC / PT	Warm-up: What do we already know about density? What objects are more / less dense than water and how do we know this? Using a glass of water, show how some objects are denser than water and some are less dense. Explain the word 'buoyancy' and how this word can be used to explain what is happening.	0-5 mins
WC / PT	Main Teach: Show children images and video clips of fireworks. What do you notice? How can the firework colours and shapes be explained using science vocabulary? Ask children to discuss in partners how the fireworks travel through the air. They can use words such as 'gravity' and 'air resistance'. How does the science change when we put fireworks in water?	10-15 mins
I / S	This is a very cool, simple and fun experiment, and also completely safe, just don't drink the water! Activity: • Fill the tall glass with warm water. • Pour a small amount of oil into another container and add a few drops of food colouring. • Give it a good stir, if it doesn't mix, add a bit of water. • Pour the food colouring and oil mixture into the warm water and watch the fireworks!	30-40 mins
I	Extension Challenge: Using the internet, children are to research different types of fireworks. Are there different types of fireworks? How are fireworks made? Where do fireworks originate from and who was 'Guy Fawkes'?	0-15 mins
WC	Plenary: Can we make fireworks underwater? How are fireworks underwater similar / different to firework in the air? Was it water we used as our liquid or something else?	5 mins

WC – Whole Class PT – Partner Talk I – Independent S - Support

Challenge A	Design and make an umbrella or any device to keep the user dry during a rain shower.
Challenge B	Construct a zip wire or a similar thrill seeking experience for a chosen type of mini figure.