

Chemistry		Lesson 10: Chemical warfare – are you protected?		
Curriculum Key:	AQA 12.6	OCRA P1	OCRA C1f C1e	Edexcel topic 7
Objective(s) 1. Students evaluate materials' suitability for a particular task based upon scientific evidence, especially comparing numerical data. 2. Students evaluate each others' designs, identifying both strengths and weaknesses (peer assessment). 3. Students work as part of a team to design a chemical warfare suit.		Resources needed: PowerPoint presentation Plain A4 paper Design template sheet Chemical cards Material cards.		
Starter: 10 minutes PowerPoint – (see teachers' notes for guidance on using it). This begins by introducing the topic of chemical warfare and protection, focusing upon a new technology to make nanofibres (a skin tight moulded suit). Group discussion and feedback on the things that a designer must consider when designing a chemical warfare suit – <i>Mind Mapping</i>		Teacher input/assessment Teacher-led discussion (PowerPoint activity).		
Main Activity 1: 15 minutes The PowerPoint continues to show students the problem with current chemical warfare suits and introduce their role. Card sort activity – Students look at the chemical cards and identify the best material for protecting against each one (or for allowing through in the cases of oxygen, water etc) e.g. Cotton is the lightest so reducing sweating but is the most porous so ineffective against a lot of chemicals.		Teacher input / assessment PowerPoint, discussion feedback.		
Main Activity 2: 15 minutes Design the suit using the design template; final slide is a copy of the template for teacher led prompts. It is possible for students to annotate and add drawings to the body to illustrate a particular design feature to aid their written description.		Teacher input / assessment Teacher guidance for each group may be dependant upon ability.		
Plenary: 15 minutes Each group presents their designs to the rest of the class and peer assessment results in a winning design for the class. If time is short, designs would be finished for homework.		Teacher input / assessment Discussion at the end. Poster competition?		
Learning Outcomes: All students must: work as a group to produce a design for a chemical warfare protective suit. Most students should: understand that the suit would be more suitable if it was not made from just one material. Some students could: suggest the properties of an ideal material (or a combination of materials).				
Key Skills: Team work, evaluating Key words: porous, absorption, nanometre Homework: Name and explain other occasions where the property of the material chosen is relevant to the task it performs.		Differentiation: More able: should choose appropriate materials for different parts of the body and justify their decisions. Less able: design a suit made of one material and justify their reasoning.		