

Objective and Milestone 1 Indicators	Teaching input	Basic Activities	Advanced Activities	Deep Activities	Resources
<p>To explore modern fire engines</p> <p><i>To take inspiration from design throughout history</i></p>	<p>Without any prompts or visual clues, ask children to draw a picture of a fire engine on a mini whiteboard or piece of scrap paper. After a few minutes, ask children to share their drawings with a partner, discussing the questions on the slides. What do fire engines need to have? How are fire engines different to other vehicles? Children to think, pair, share their ideas. Go through the information and pictures of fire engines on the slides. Ask children to look back at the pictures they drew. Do you need to add anything to your fire engines from what we have learnt?</p>	<p>I can label features of a fire engine. Provide children with worksheet 1A and the Label Cards. Children to stick the labels in the correct boxes on the worksheet to label the photograph of a fire engine.</p> <p>FSU - as above</p>	<p>I can label and describe features of a fire engine. Provide chn with an image of a fire engine, have chn fill in the boxes with name and description of the feature.</p>	<p>I can label features of a fire engine and explain what parts of the fire engine do. Provide chn with an image of a fire engine and answer 'How does it work?' Qs for features.</p>	<p>Slides Worksheet 1A/1B/1C/1D/1E Label Cards Photos of fire engines</p>
<p>To investigate wheels, axles and chassis.</p> <p><i>To take inspiration from design throughout history. Explore how products have been created.</i></p>	<p>Show children the picture of a fire engine on the slides. How does the fire engine move? Children to think, pair, share their ideas. Go through the information on the slides explaining that wheels on a vehicle need an axle. Show children the two different ways wheels and axles can be used: either having the wheels firmly fixed to the axle so the axle moves the wheels around, or having the wheels loose on the static axle so that the wheels can turn around. Explain what a chassis is and the part it plays in the two</p>	<p>Provide children with the Challenge Sheet. Support children in working through the instructions to make two different kinds of chassis out of card. Children will need materials for axles and wheels. These could be cardboard discs and dowelling or straws, or items from a construction kit. Children to then complete worksheet 1B to draw labelled sketches of each. EXTEND - challenge children to explore how wheels move differently if the holes are not central. Children will need pre-cut circles of thick card for this activity.</p>			<p>Slides Challenge Sheet Worksheet 2A/2B Wheels and axles (and/or materials that can be used as such) Card and cardboard boxes</p>

	<p>different ways wheels and axles can be used. Tell children that today they will be practising attaching wheels to axles for when they design and make their own fire engines. What different materials do you think we could use for axles? What materials do you think we could use for wheels? What could we use for the chassis? Children to think, pair, share their ideas then go through the suggestions on the slides.</p>		
<p>To be able to investigate ways of creating and decorating the body of a fire engine.</p> <p><i>To master practical skills</i></p>	<p>Remind children that in lesson 2 we looked at how to create the basis of a fire engine by joining wheels and axles to a chassis. What else do we need to make a vehicle? Children to discuss ideas. Tell children that today they will be looking at different ways of creating the body of a fire engine. Show children the picture of a fire engine on the slides. What shapes can you see? Explain that today they will be using lots of different materials to practise making the body of a fire engine. Show children various items on the slides, e.g. boxes, card, cardboard discs, etc. How could you use these items to make the body of a fire engine? What else could you use? Discuss ideas as a class. Repeat this for making a ladder and a fire hose for a fire engine. You may wish to model some ways of joining different materials and components</p>	<p>Provide children with a set of Challenge Cards 3A which challenge children to work out different ways to create the body of a fire engine, as well as the doors, windows and ladder. Provide children with a range of materials, such as boxes, cardboard, cotton reels, cardboard discs, dowelling, lolly sticks, etc. Give children some time to investigate each one, then record their findings on worksheet 3A/3B/3C (differentiated)..</p> <p>PLENARY - Ask children to discuss what they found out this lesson about combining different components to create the body of a fire engine. What kinds of materials did you fit together? How did you fit them together? How did you make different shapes? How do you think you could attach the bodies you made today to a chassis? Discuss ideas as a class.</p>	<p>Slides Challenge Cards 3A/3B Worksheet 3A/3B/3C Variety of materials, e.g. cardboard boxes, card, wheels, lolly sticks, matchsticks, pipe cleaners, dowelling, etc. Variety of tools, e.g. scissors, sticky tape, glue, etc.</p>

<p>To be able to design a Fire engine</p> <p><i>To design, make, evaluate and improve</i></p> <p>FS2 - UW and EAD - to design and make a fire engine using construction kits or wooden blocks etc in the outside area</p>	<p>What have we learnt about fire engines so far? What different ways can we make the different parts of a fire engine? Invite children to share their responses as a class. Explain that today children will be designing their own fire engine so that in the next lesson they can make it. Explain it's important to think carefully about your designs so that your finished products work really well. What would your fire engine model need in order to be successful? What should it be able to do? What should it look like? What should it have? Children to think, pair, share their ideas. Go through the design criteria on the slides. Go through the questions on the slides together: How will you decorate your fire engine? What materials and tools will you need to make your fire engine? What kind of axles will you use? Children to discuss ideas as a class.</p>	<p>I can work as a group to design ideas for my fire engine.. Discuss children's design ideas with them in small groups and then support them in recording their design ideas on worksheet 4A. You may wish to provide children with Picture Card 4A to support them.</p> <p>FS2 - EAD - EUMM make parts for model houses</p> <p>PLENARY - Ask children to get into pairs. Give each child five minutes to present their design to their partner. When both have gone through their designs, ask the partner to give two things they really like about the design and one thing they think they could change to make it even better.</p>	<p>I can design my fire engine. Children to design their fire engine on worksheet 4A.</p>	<p>I can design my fire engine and explain how I will make it.. Children to design their fire engine on worksheet 4B. When finished, children to describe how they will make their vehicle on worksheet 4C.</p>	<p>. Slides Worksheet 4A/4B/4C/4D/4E/4F Picture Card 4A Picture Card 4B (FSD? activity only)</p>
<p>To be able to make a fire engine based on a design.</p> <p><i>To design, make, evaluate and improve</i></p>	<p>Ask children to get out the designs they did in lesson 4 and give them a few minutes to look through them to remind themselves of what they need to do.</p> <ul style="list-style-type: none"> • Children to get into pairs. Ask each child to describe to their partner how they will make their fire engine. What will you do first? When will you decorate your fire engine? How will you put the wheels and axles together? How 	<p>I can create my fire engines with support as appropriate Support children in gathering the materials and tools they will need and then support them in</p>	<p>I can make my fire engine by following my design Children to follow their designs to create their fire engines.</p>	<p>I can follow my design and make amendments to my design as appropriate Children to follow their designs to create their fire engines. Make sure children work with</p>	<p>Slides Designs from lesson 4 Variety of materials dependent on designs, e.g. cardboard boxes, cartons, card, lolly sticks, paper, etc. Variety of tools e.g. scissors, masking tape,</p>

	<p>will you attach the axles to the chassis?</p> <ul style="list-style-type: none"> • Tell children that today they will be following their designs to make their fire engines. This means there will be lots going on in the classroom and lots of tools, such as scissors, around. How can we make sure we are working safely and sensibly when we are making our fire engines? Children to think, pair, share their ideas. 	<p>combining the components to create their fire engines based on their designs.</p> <p>FSU - W - Draw and label fire engines</p>		<p>particular attention to detail and challenge them to amend their design ideas if necessary to produce a vehicle of a high quality.</p>	<p>glue, etc. Materials for decoration, e.g. paint, crayons, scraps of shiny paper, etc.</p>
<p>To be able to follow a design and create a house.</p> <p>To design, make, evaluate and improve</p>	<p>Ask children to get out their designs from lesson 4 and give them some time to look through them.</p> <p>Tell children that today they will be following their designs to make their houses. What do we need to think about before we start making our houses? Children to think, pair, share their ideas.</p> <p>Go through the questions on the slides, e.g. How will you make sure that you have all the materials you need? How can we stay safe while we are making our houses? What will you do if you have a problem? How can you make sure that your house turns out how you want it to? etc.</p>	<p>I can make following my design</p> <p>Support children in following their designs to make their houses by helping them join materials together and making sure they include everything from their design.</p> <p>. FSU - work together as a group to make large model fire engine using big cardboard boxes</p>	<p>I can make following my design independently</p> <p>Children to work independently to follow their designs and create their houses.</p>	<p>I can make following my design and make improvements as I go along.</p> <p>Children to work independently to follow their designs and create their houses. Challenge children to think carefully about how they can use finishing techniques to improve the overall quality of their finished product.</p>	<p>Slides</p> <p>Designs from lesson 4</p> <p>Variety of materials (depending on designs)</p> <p>Variety of tools (depending on designs)</p>

<p>To be able to evaluate a finished product.</p> <p>To design, make, evaluate and improve</p>	<p>Ask children to place their finished fire engines on their tables. Give the class some time to walk around the classroom to look at the work other children have done. Which fire engines particularly catch your eye? Why? Do all these fire engines move? Children to discuss ideas. Tell children that today they will be evaluating their work. What does the word 'evaluate' mean and why do you think it is important to evaluate a finished product? Children to discuss ideas as a class then go through the explanation on the slides.</p> <p>Ask children to get into a circle. Look at the questions on the board: What was your favourite part about making your fire engine? What did you find most difficult? For each question, pass around a 'talking object'. As each child takes the object, they give their answer to the question and then pass on to the next child, etc.</p>	<p>I can evaluate my design</p> <p>Children to evaluate their fire engine on worksheet 6A.</p>	<p>I can evaluate my design and say what was difficult and easy to do</p> <p>Children to evaluate their fire engine on worksheet 6B.</p>	<p>I can evaluate my design and say what I could have done differently</p> <p>Children to evaluate their fire engine on worksheet 6B</p>	<p>Slides</p> <p>Completed fire engines</p> <p>Worksheet 6A/6B</p> <p>Digital cameras (FSD)</p>
		<p>If you were going to make your fire engine differently, what would you do? Go around the class, asking for different suggestions.</p>			

Designing making and evaluating sessions (last 3) could be blocked to make easier on resources and time.