

# Heat Lesson 2 | Lesson Outline



## Learning intention:

To understand how different renewable technologies can be used to generate heat, and to recognise that skills such as project planning and budgeting are useful for building technologies such as heat networks.

<b>Resources</b> <b>Introductory Video</b> – Biomass & Heat Networks (3mins 54secs) <b>Worksheet 2</b> – Heat Network Map <b>Instruction Slides</b> – Heat Network Map <b>Worksheet 2</b> – Answers <b>Home Activity Outline</b> – Where has the Heat Gone? <b>Home Activity Worksheet</b> – Where has the Heat Gone? <b>Home Activity Answers</b> – Where has the Heat Gone?	<b>Per group or class</b> Rulers
<b>Hook into the lesson</b>	<p>Play <b>Introductory Video - Biomass &amp; Heat Networks</b>.</p> <p>The video introduces different technologies that can be used to generate heat, such as biomass boilers and heat networks.</p> <p>The video asks the following question, giving opportunity to pause and discuss (or pupils could write individual answers):</p> <p><b>Natural gas is a fuel that can be burned to generate heat. What other fuels can be burned to release heat? (54 sec)</b></p>
<b>Activity</b>	<p>Pupils will create a potential plan for a heat network, drawing pipes on a village map. They will be asked to calculate the cost of their plan, before attempting to create a cheaper version of the plan. The calculation of costs requires use of rulers. They will then answer questions related to the importance of creating a plan for building works, and other considerations needed.</p> <p>Give pupils <b>Worksheet 2 – Heat Network Map</b>.</p> <p>Use <b>Instruction Slides - Heat Network Map</b> to explain the activity to pupils.</p>
<b>Plenary</b>	<p>Lead a class discussion on heat networks, project planning and budgets.</p> <p><b>Q: What skills do you think you would need to plan heat networks?</b></p> <p><i>A: Budgeting, management of people, problem solving, attention to detail.</i></p> <p><b>Q: If there isn't a local source of waste heat to use in a heat network, how could a heat network be used?</b></p> <p><i>A: Heat could be generated in a central heat pump or biomass boiler and moved using the heat network.</i></p> <p><b>Q: The technology to generate renewable heat already exists, so why do you think it will take some time for homes across the UK to use this technology?</b></p> <p><i>A: It takes time to install the technology, and it can be very expensive for lots of homeowners.</i></p>
<b>Home Activity</b>	<p>Give pupils <b>Home Activity Worksheet – Where has the Heat Gone?</b>. Pupils will recognise common ways that heat energy can be wasted or lost in the average home and suggest ways this could be reduced.</p>