

Lesson plan: Lesson plan 3 - Designing your sustainable city - 3D model

Learning objective: Generate a 3D model of their city, including buildings essential for inhabitants to live more sustainably.

Resources required

Graph paper (if desired)
Plain paper
Pencils
Rulers
Colouring pencils
Scissors
A2 card

Resource 3a – sample city building for 3D model

Duration

1 hour

Theme

Sustainability

Subject focus

Design and Technology

Age group

Lower KS2
Upper KS2

Learning outcomes (differentiated)

MUST: Create a 3D building for their city

SHOULD: Draw landmarks and features e.g. rivers around their 3D models. Recognise the essential things that are needed for a city and its inhabitants to survive.

COULD: Create a model of a more complex building e.g. wind turbine. Potentially children can follow a design brief to create an accurate model.

Keywords

Infrastructure,
scale,
surface,
face,
cross section,
plan,
key

Starter

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Gather the class into their working groups. Ask them to review their 2D plans and collect all of the materials they need to create their 3D model.

Main activity

Children should be introduced to their large piece of A2 card. Explain to the children that they should use their plans to work out where everything goes in their city and create the same city as on their plans, but in 3D.

The children may not be able to fit all of their city buildings and landmarks on their model but they should try to include an example of energy, food, nature areas, transport and waste collection/recycling.

Adult Support

- Divide up the resources available to make the builds. Help children with cutting and securing their buildings. Ensure successful teamwork.

Follow up activities

- Presentation of the city models if run as a competition
- Prize giving and evaluation

- The session should be largely child led, with the children designing their buildings from craft and recycled items. To give their city a realistic feel and to help represent other parts of the landscape they can include the cut out buildings and landmarks resource (Resource 3a sample city buildings for 3D model)
- Children should be given time to create their 3D model city. They can work individually or in groups for the task. Take opportunities to share good working practice and peer assess the children's progress.
- Show the children examples to inspire their ideas and how to present their work.





Plenary

Ask pupils to visit each other's cities (you can extend this further by having a city tour guide from each team taking other teams around their city in details). Evaluate each other's work, as well as their own.

Extension tasks

To cover areas of KS2 Geography children could create a map of their city using 4 and 6 figure grid references.

Actions before next lesson

Prepare certificates from certificate template

Reflective Notes

Curriculum links

Design and Technology

- Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.