Futuristic forms

FUTURISTIC FORMS

CONTENTS	EVALUATION CRITERIA Pupils will be able to:	
Forms in art and architecture	Understand that forms are three-dimensional and have volume.	
Observation and analysis of forms in the London Aquatic Centre by Zaha Hadid	Identify lines, shapes and forms in buildings.	
Planes as surface elements that compose shapes and forms	Identify planes as the surface of a shape or form in works of art and their own artworks.	
Measuring: centimetres Adding segments	Reproduce and add segments after first measuring them using centimetres as the unit.	
Parallel, perpendicular and oblique lines	Draw perpendicular, parallel and oblique lines with approximate measurements using a ruler.	
Classification and comparison of angles: right, acute and obtuse angles	Identify and distinguish right angles, acute angles and obtuse angles.	
Geometric transformations: translations, turns and symmetry	Distinguish repetition by translation and symmetry in modular compositions.	
Group participation and personal responsibility in carrying out tasks for a collaborative project	Develop social skills to listen, participate and communicate effectively with others during group activities.	
Autonomy and creativity in art	Use forms in a creative way.	

ARTWORK

London Aquatic Centre, Zaha Hadid, 2012

EXPLORE

Draw 3D forms

DISCOVER

Forms in buildings

CREATE

Futuristic city

GEOMETRY IN ART

Use translation and symmetry to create geometric designs.

TALK ABOUT ART

Use the words in a complete sentence. Work in groups.

LANGUAGE FOCUS

- Architect, building, design, skyline
- Form, line, one-point perspective, shape, vanishing point
- Geometric, organic
- Capital cities, city, neighbourhood, town, village
- Places in a city: art museum, bank, fire station, hospital, school, sports centre, etc.

KEY STRUCTURES

- Future predictions using *will*

SCIENCE LINKS

Places in the city

Throughout this project, pupils can:

- List characteristics of towns, villages and cities.
- Identify buildings and their functions, including important buildings in their neighbourhood.

LEARNING STANDARDS Pupils are able to:	KEY COMPETENCES						
	LIN	MST	DIG	LTL	SOC	AUT	CUL
Draw forms using lines and shapes.	●	●					●
Distinguish between organic and geometric forms.	●	●					●
Understand the expressive potential of planes in forming shapes and forms.	●	●					●
Identify the use of planes in works of art by artists from the 20th century.	●	●					●
Make compositions using planes to create different shapes and forms.	●	●					●
Measure and reproduce segments from measurements expressed in centimetres.		●				●	●
Add segments using a ruler.		●				●	●
Draw groups of parallel, perpendicular and oblique lines with approximate measurements using a ruler.		●				●	●
Draw right, acute and obtuse angles using a ruler.		●				●	●
Analyse and repeat modular structures (series) made using translation, turns and symmetry.		●				●	●
Work cooperatively in a group to create a city.	●			●	●		●
Make a building using a variety of shapes and forms.				●		●	●

COMPLEMENTARY ACTIVITIES

Art

Class worksheet – 3D Name

- Use perspective lines to write your name in 3D.

English

My dream house

- Imagine your house in the future and draw a design of it. Where will it be? Draw a picture and write a short description.

Social Science

City of the future

- Draw the skyline of a futuristic city. Include the main places and write the names of the buildings. Use geometric and organic lines, shapes and forms.

ICT

City Creator

- Go to www.citycreator.com to plan a city.

Digital Resources

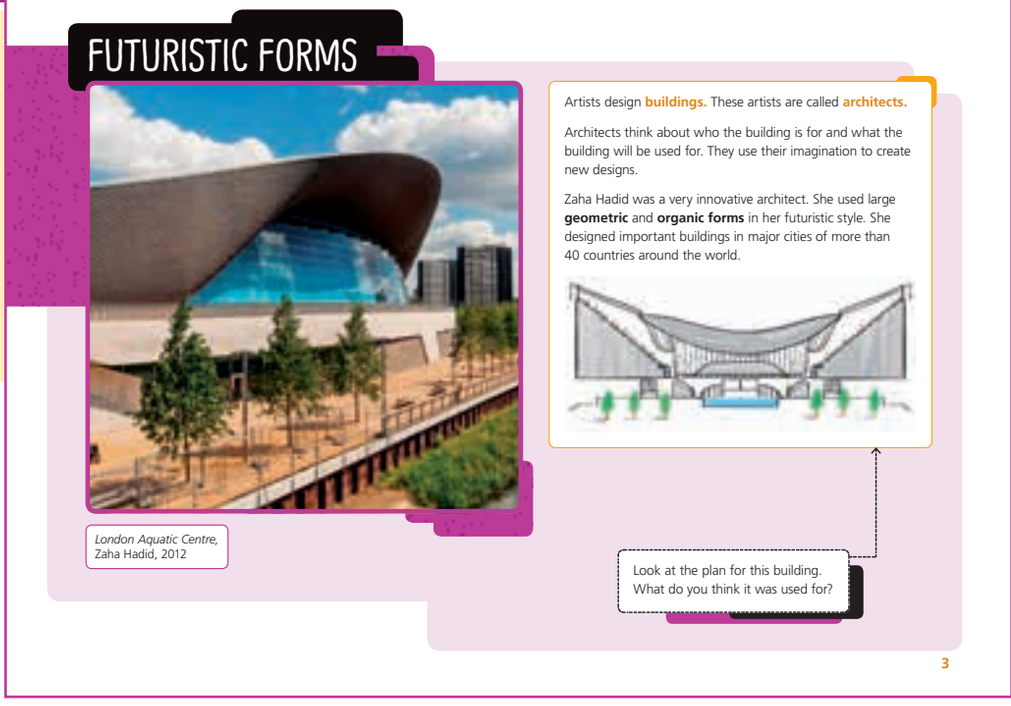
- Pupil's IWB Book
- Presentations:
  - Project overview
  - *Create* Project Presentation
- Flashcards
- Posters
- Artworks
- Interactive Activities
- Worksheets
- Multimedia Resources

GO TO THE PUPIL'S IWB BOOK TO LISTEN TO THE TEXT.

ARTWORK

MATERIALS

- Digital flashcards: architect, building, design, forms, shapes



ART AIMS

Shapes can be geometric (with angles and straight lines) or organic (natural and free-flowing). **Forms** are composed of different shapes. A form is a three-dimensional object that has height, width and depth, such as a building. Forms can be geometric or organic.

LANGUAGE FOCUS

- Architect, building, design, skyline
- Form, line, shape
- Geometric, organic
- Capital cities, city, neighbourhood, town, village
- Places in a city: art museum, bank, fire station, hospital, school, sports centre, etc.

SCIENCE LINK

Make links to Social Science content about *buildings in cities* by helping pupils:

- List characteristics of towns, villages and cities.
- Identify buildings and their functions, including important buildings in their neighbourhood.
- Identify important cities in Spain and Europe.

GETTING STARTED

- Show the pupils the architect, design and building digital flashcards and ask them how these words are related. *Architects design buildings.*
- Show the pupils the shapes and forms digital flashcards and ask them to compare and contrast the two elements of art. *Shapes are flat. Forms are three-dimensional. Forms have height, length and width. Shapes and forms can be geometric or organic. Etc.*
- Encourage the pupils to find examples of geometric and organic forms in objects around the classroom.

STEP BY STEP PAGE 3

Look at the building

- Ask the pupils to open their book to page 3 and read the title.
- Encourage them to look at the building and describe what they see.
- Take this opportunity to teach new vocabulary.
- Read the text with the pupils.
- Ask pupils to describe the geometric and organic shapes and forms in the photo and the building plan.

THE ARTIST

Zaha Hadid (31 October 1950–31 March 2016) was an Iraqi-British architect. In 2004 she became the first female architect to win the Pritzker Prize, the highest honour in architecture, for her innovative style that included fluid and dynamic forms. Some of her most important works include art museums, cultural centres, office buildings, hotels, houses, bridges, a library, a train station and a fire station. Her buildings can be found in large cities all over Europe, Asia and the Middle East. In Spain, she designed the *Bridge Pavilion* in Zaragoza.

THE ARTWORK

The ***London Aquatics Centre*** (2012) was built for the 2012 Olympic Games in London, England. Inspired by water, the roof of the building curves up from the ground like a wave. This building was constructed along the river of the Olympic Park and the design focuses on creating spaces within the surrounding environment. Hadid applied these design concepts in the interior of the Aquatic Centre as well, making this structure as impressive on the inside as it is on the outside.

Look at the plan for this building. What do you think it was used for?

- Pupils can use context clues, for example, the swimming pool and the stadium seating represented in the plan or the title of the building under the photo. *Aquatic centre.*
- Explain to the pupils that this aquatic centre was built for the 2012 Olympics in London.

LEVELLED QUESTIONS

- ★ **How is the aquatic centre different from the other buildings in the photo?** *The aquatic centre is made up of fluid, organic shapes and forms. The buildings in the background are made up of geometric shapes and forms.*
- ★★ **How is the sports centre in your neighbourhood similar to or different from this structure?** Accept a variety of responses.
- ★★★ **How does this building look futuristic?** Encourage the pupils to share their ideas.
- ★★★★ **What natural element does the roof represent?** *Water or a wave.* Although not fully shown from the angle of the photograph on this page, the roof of this building curves from the ground, rising over the building like a wave. You can share a variety of images of the building from the internet.
- Provide time and support so that the pupils can express themselves. Take this opportunity to teach any new vocabulary.

SCIENCE LINK

Review what pupils know about large cities in Spain and the rest of Europe.

- Ask the pupils if they live in a village, a town or a city and review some of the characteristics of each.
- Encourage pupils to name some of the buildings we can find in large cities, for example: museums, restaurants, sport stadiums, airports, hospitals, etc.
- Ask the pupils to locate London on a map and to recognise it as the capital city of England. Ask the pupils to find and name other capital cities in Europe.
- You can take this opportunity to review other major cities across Europe and Spain.

DIGITAL TIPS

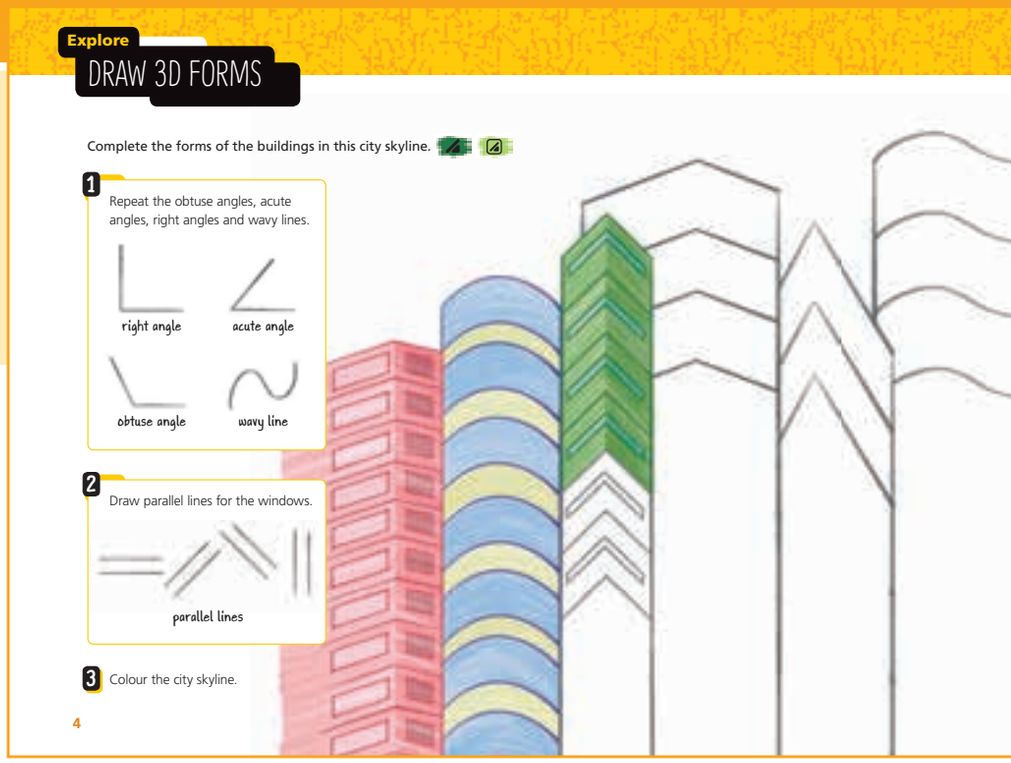
Interactive whiteboard

- Display the digital poster of *London Aquatic Centre* on the interactive whiteboard. Call pupils forward in pairs or small groups and invite them to point to (or trace) the geometric and organic shapes and forms.

EXPLORE

MATERIALS

- Coloured pencils, crayons or felt tips
- Pencil
- Ruler
- Set squares (optional)



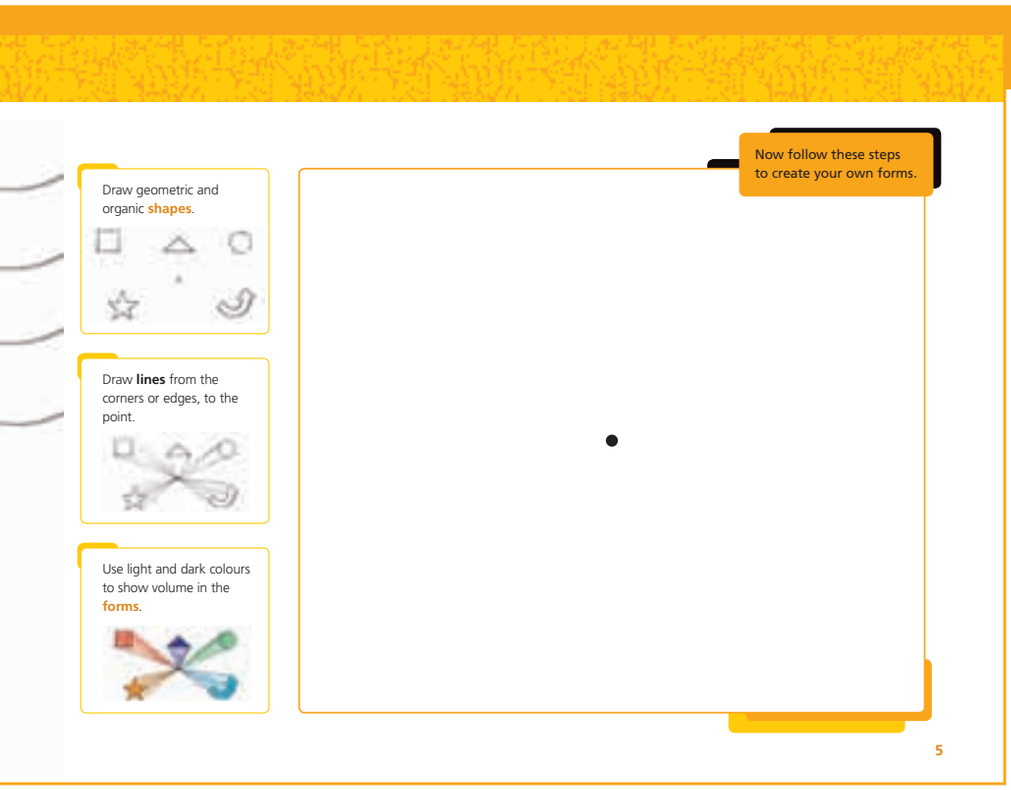
STEP BY STEP PAGE 4

Complete the forms of the buildings in this city skyline.

- Ask the pupils to turn to page 4.
- Read the instructions with the pupils and focus their attention on the buildings in the illustration.
- Explain to the pupils that a city skyline is the outline of a group of buildings against the sky. Each city has its unique skyline.
- Instruct the pupils to look along the top of the buildings of the skyline and ask them to point to the building that has a right angle *(3rd building),* an acute angle *(5th building)* and an obtuse angle *(1st and 4th buildings).* Then, ask them to point to the buildings that have a curved line *(2nd building)* and a wavy line *(6th building).*
- Ask the pupils to find the parallel lines in each building. Explain that parallel lines can be straight, curved or wavy. *The sides of each building are parallel. The repeated angles and lines in each building are parallel. The lines of the windows are parallel with the lines that make up each angle and the sides of each building.*
- Pupils then continue drawing these angles and lines with a ruler to complete the buildings. A ruler (or set squares) should also be used to draw parallel lines for the windows.

TEACHER TIPS

- Pupils can practise making different angles by placing their wrists together and using their hands as rays. Name an angle, for example, an acute angle, and encourage pupils to make an acute angle with their hands. Make sure that all the pupils understand that a right angle is 90°, an acute angle is less then 90° and an obtuse angle is more than 90°.
- Explain that parallel lines are two or more lines that never intersect. You can review this concept by asking pupils to create two parallel lines using their bodies along with their classmates. Then, ask one of the lines to move so that the lines intersect to show non-parallel lines.



STEP BY STEP PAGE 5

Now follow these steps to create your own forms.

- Read the instructions with the pupils and encourage them to look at the examples.

1 **Draw geometric and organic shapes.**

Encourage pupils to notice that the shapes are drawn around the centre point.

2 **Draw lines from the corners or edges to the point.**

Focus pupils' attention on the straight lines drawn from the shapes to the point.

3 **Use light and dark colours to show volume in the forms.**

Pupils can use light and dark colours along the different surfaces of each form to emphasise volume and create a fun 3D effect.

SCIENCE LINK

- Ask pupils to identify the important buildings in their neighbourhood. Encourage them to talk about their location and functions.

WRAP IT UP

- Pupils can work with a partner to compare the artworks they completed in the Explore section. Encourage them to talk about the lines, shapes, forms and colours.

FAST FINISHERS

- Fast finishers can add more complex shapes on page 5 to create more forms by drawing lines to the vanishing point.

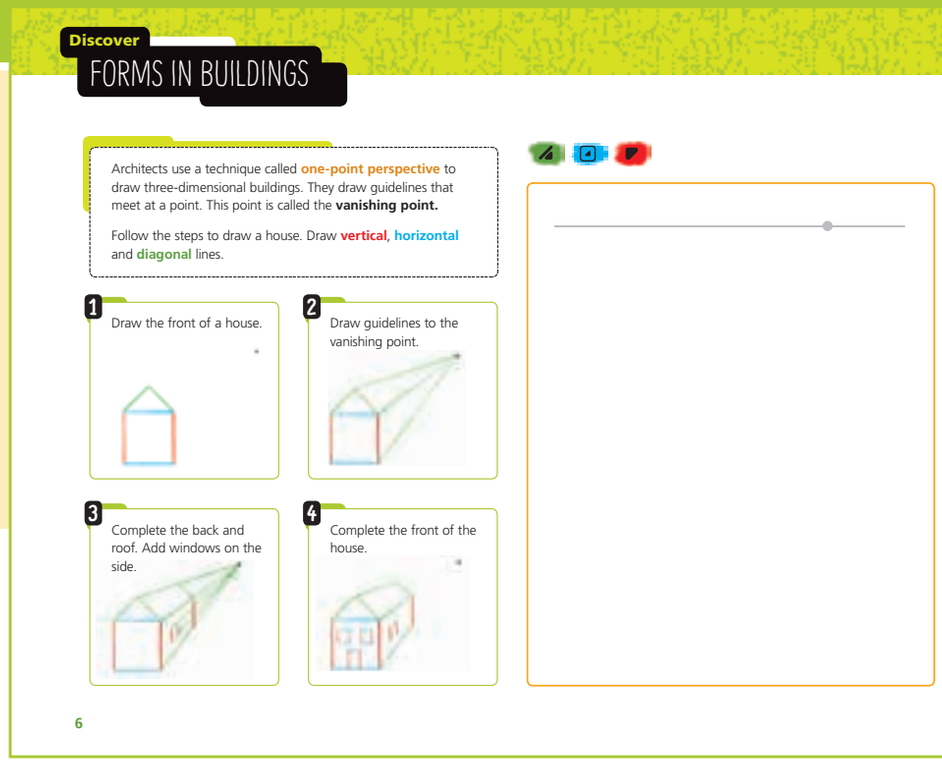
KEEP IN MIND

- ◯ Send the *Futuristic forms* parent letter home. This letter requests the following materials from home: Recycled materials: cardboard rolls, plastic containers, small boxes, etc.
- ◯ _____
- ◯ _____
- ◯ _____
- ◯ _____

DISCOVER

MATERIALS

- A5 sheet of paper
- Coloured pencils, crayons or felt tips
- Digital flashcards: architect, building, design, forms, one-point perspective, shapes
- Pencil
- Ruler
- Set squares (optional)


Discover

FORMS IN BUILDINGS

Architects use a technique called **one-point perspective** to draw three-dimensional buildings. They draw guidelines that meet at a point. This point is called the **vanishing point.**

Follow the steps to draw a house. Draw **vertical**, **horizontal** and **diagonal** lines.

1 Draw the front of a house.

2 Draw guidelines to the vanishing point.

3 Complete the back and roof. Add windows on the side.

4 Complete the front of the house.

6

ART AIMS

- Draw a three-dimensional house using one-point perspective.
- Design a three-dimensional building for a city using one-point perspective.

LANGUAGE FOCUS

- Architect, building, design
- Form, line, one-point perspective, shape, vanishing point
- Geometric, organic
- City, neighbourhood, town, village
- Places in a city: art museum, bank, fire station, hospital, school, sports centre, etc.
- Comparative: smaller, bigger, more, fewer

SCIENCE LINK

Make links to Social Science content about *places in the city* by helping pupils:

- Compare the buildings in a large city to those found in towns and villages.
- Classify buildings as public or private.

STEP BY STEP PAGE 6

Forms in buildings

- Pupils read the title and text on page 6.
- Focus the pupils' attention on the words *vertical, horizontal and diagonal lines*. Ask pupils to paint imaginary vertical, horizontal and diagonal lines of different sizes in the air and check for understanding.
- Read the instructions with the pupils and talk about the illustrations in each step.

1 Draw the front of a house.

The coloured lines are used in the examples to help explain this drawing technique.

2 Draw guidelines to the vanishing point.

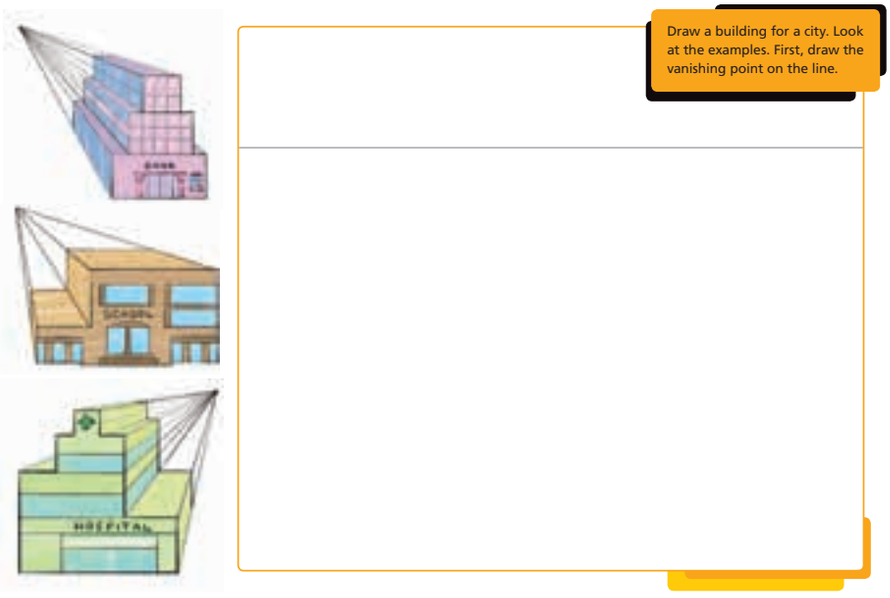
Pupils draw lines from the corners (or edges) of their shapes to the vanishing point.

3 Compete the back and roof. Add windows on the side.

Pupils can add windows by drawing new perspective lines along the side of their house.

4 Complete the front of the house.

Encourage pupils to notice that the perspective lines have been erased in this step.



STEP BY STEP PAGE 7

Draw a building for a city. Look at the examples. First, draw the vanishing point on the line.

- Encourage pupils to talk about the shapes and forms they see in each building.
- Allow pupils to choose a building and the shape of the front.
- Pupils can make a sign for the name of their building.

SCIENCE LINK

Compare the types of buildings in a city to those found in villages and towns:

- Discuss the functions of the three buildings on this page. Then pupils can share the building they drew and talk about its function.
- Classify the buildings the class drew as public or private.

TEACHER TIPS

- Pupils should use a ruler (or set squares) for every step.
- Remind pupils to draw lightly with their pencil so that lines can be easily erased.

WRAP IT UP

- Invite pupils to form groups based on the buildings they drew on page 7. Encourage them to share their artwork and compare and contrast their designs.

FAST FINISHERS

- Fast finishers can draw more objects around their building on page 7, for example: a street, a pavement, trees, street signs, benches, etc.

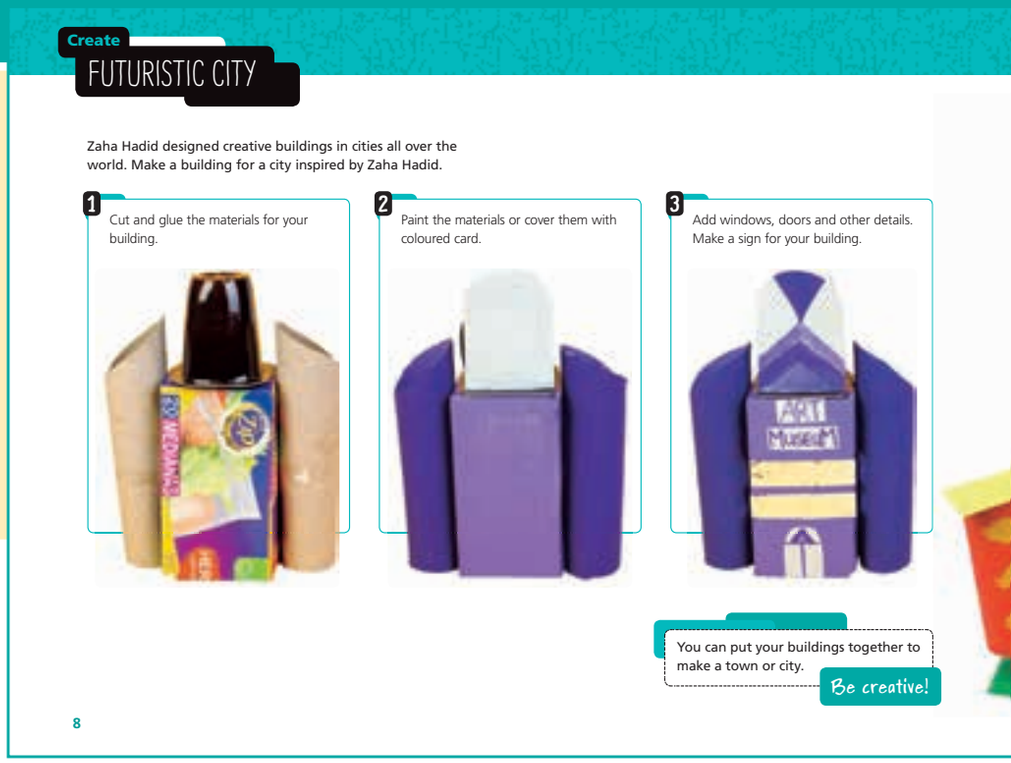
KEEP IN MIND

- Materials to prepare for Create:
  - Paintbrush
  - Scrap paper
  - Recycled materials: cardboard rolls, plastic containers, small boxes, plastic bottle caps, etc.
  - Tempera paint (mixed with one part white glue)

CREATE

MATERIALS

- Felt tips
- Glue stick
- Paintbrush
- Recycled materials: cardboard rolls, plastic containers, small boxes, etc.
- Scrap paper
- Scissors
- Tempera paint



ART AIMS

- Make a building using a variety of shapes and forms.

LANGUAGE FOCUS

- Architect, building, design
- Form, line, shape
- Geometric, organic
- City, neighbourhood, town, village
- Places in a city: art museum, bank, fire station, hospital, school, sports centre, etc.
- Comparative: smaller, bigger, more, fewer
- Future predictions using *will*

SCIENCE LINK

Make links to Social Science content about *places in a city* by helping pupils:

- Identify buildings in a city and discuss their function.
- Reflect on how buildings will change in the future.

GETTING STARTED

- Ask pupils to share some of the recycled materials they brought to class for the art project.
- Pupils can describe the shapes and forms of the materials and brainstorm ways they can use them to create a futuristic building.

STEP BY STEP PAGES 8 AND 9

Futuristic city

- Ask pupils to open their book to page 8 and read the title.
- Read the text with the pupils.
- Ask pupils to share ideas of different buildings they can make for their city.
- Invite volunteers to read each step and encourage the pupils to talk about what they see in each example.

1 Cut and glue the materials for your building.

Pupils can combine both geometric and organic forms in their futuristic design. Also encourage them to think about what their building will be used for and to consider that in the design, for example: a school, a hospital, a sports centre, etc.

9

2 Paint the materials or cover them with coloured card.

Mix one part tempera paint with one part white glue so that it can be used with all the materials that are not paper or carton.

3 Add windows, doors, and other details. Make a sign for your building.

Pupils can use a variety of materials including paint, scrap paper or extra recycled materials to add to their building. They can also use felt tips to draw the details.

+ Optional Step:

If time allows, pupils can put their buildings together to make a town or city (see instructions on page 11).

Alternatively, this step can be completed in the third activity during the TALK ABOUT ART lesson on page 11.

SCIENCE LINK

- Encourage pupils to incorporate the function of the building they make with the design they create.
- Ask pupils to share ideas about what buildings will be like in the future. Instruct them to use *will* to talk about future predictions, for example: *I think buildings will be taller. Buildings in the future will have more organic forms. Etc.*

TEACHER TIPS

- Encourage pupils to share extra materials with others.
- Plan ahead: cover the desks with newspaper or continuous paper before painting. Arrange a safe place to put the artworks to dry.
- Mix one part poster paint with one part white glue so that it sticks on all types of materials.
- Encourage autonomy throughout the creative process and allow pupils to make choices, test ideas and solve problems with limited guidance.
- Some materials will take longer to glue than others. Encourage pupils to be patient and hold the containers firmly until the glue dries.

WRAP IT UP

- If time allows, pupils can complete the Talk about Art activities on page 11.

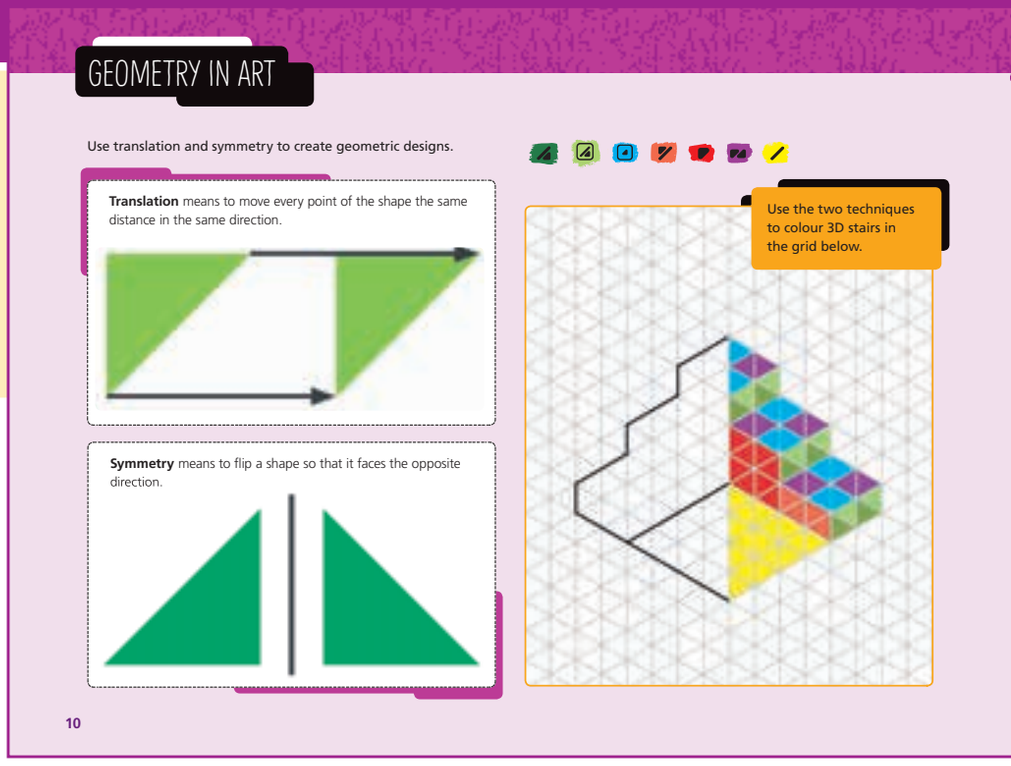
FAST FINISHERS

- Provide fast finishers with a sheet of A5 paper. Instruct them to begin planning the city streets, roundabouts, park areas, etc. for their city in the final step of this project.

GEOMETRY IN ART

MATERIALS

- Coloured pencils



STEP BY STEP PAGE 10

Geometry in Art

- Read the text with the pupils and focus their attention on the examples.
- Draw a scalene triangle (or another unsymmetrical shape) on the board and invite a volunteer to translate the shape horizontally, vertically or diagonally. Repeat several times and check for understanding.
- With the same shape as before, draw a vertical line on one side and invite a volunteer to flip the shape horizontally. Then draw a horizontal line below the shape and invite a volunteer to flip the shape vertically.

Use the two techniques to colour 3D stairs in the grid below.

- Focus the pupils' attention on the colourful staircase in the grid and encourage them to find examples of translation and symmetry.
- Encourage the pupils to observe the drawing of the other side of the staircase carefully and often.

SCIENCE LINK

Help pupils understand that some people with disabilities cannot use staircases. Ask pupils to reflect on specific design features for disabled people around the city, for example, ramps and lifts, tactile paving and audible crosswalks.

TEACHER TIPS

- Coloured pencils are difficult to erase. Instruct pupils to first colour each triangle lightly or place a small dot of colour in each triangle.
- Once they are sure that they chose the correct colour for each one, they can colour the triangles completely.

TALK ABOUT ART

MATERIALS

- Final artwork (from Create, see Pupil's Book page 8)

OPTIONAL MATERIAL

- A2 card or continuous paper

STEP BY STEP PAGE 11

Talk about Art

- Ask pupils to open their book to page 11.

1 Use each of the words in a complete sentence.

- Read the instructions and invite pupils to work with a partner.
- Pupils can work with a partner in a *Think-Pair-Share* structure. See pages 22-23 of the Introduction for more tips about Cooperative Learning.

2 Talk about your final artwork.

- Pupils form small groups to share their artwork with others.
- Instruct pupils to take turns and speak in complete sentences.
- Encourage group members to ask questions about their classmates' artworks. See pages 14-19 of the Introduction for more tips on *Talking about Art.*

3 Work in a group.

- Read the instructions with the pupils and allow them to form their own groups to make a town or city centre.
- Pupils should find classmates that made buildings different from the one they made.
- Pupils can use felt tips, plasticine, recycled materials, scrap paper and a variety of other materials to add streets, pavements, roundabouts, parks and other important areas on an A2 card or continuous paper.
- Encourage pupils to collaborate with group members while constructing their city.

SCIENCE LINK

During Science class, the pupils can make street signs for their city. They can look at their city from above and make a map and draw a key.

- Extension idea: use the city projects for a hands-on lesson about local government. Groups can elect a mayor for their city, become city council members and discuss laws and social services for their city.

TEACHER TIPS

- Walk around and check for active participation.
- Model questions and phrases to guide pupils in the discussion process.
- Allow plenty of time for all the pupils to practise speaking and provide support when necessary.

3-D NAME

CLASS WORKSHEET

NAME: _____ CLASS: _____

1 **Follow the steps and write your name in 3-D.**

FUTURISTIC FORMS

PRIMARY 3

NAME: _____ **CLASS:** _____

	LIMITED 1-2	IN PROGRESS 3-4	BASIC 5-6	PROFICIENT 7-8	ADVANCED 9-10
Understand that forms are three-dimensional and have volume.					
Identify lines, shapes and forms in buildings.					
Identify planes as the surface of a shape or form in works of art and their own artworks.					
Reproduce and add segments after first measuring them using centimetres as the unit.					
Draw perpendicular, parallel and oblique lines with approximate measurements using a ruler.					
Identify and distinguish right angles, acute angles and obtuse angles.					
Distinguish repetition by translation and symmetry in modular compositions.					
Use forms in a creative way.					

SCORE _____ **/80**

ARTS & CRAFTS PROJECTS

BY ME

Dear Parent/Carer,

Your child is about to begin the **Futuristic forms** project of *ByME Arts & Crafts Projects Primary 3.* In this project, your child will:

- Observe and analyse forms in art and architecture.
- Draw forms using lines and shapes.
- Develop autonomy and creativity in art.
- Explore a variety of art materials in a personal way.
- Make a futuristic building using a variety of shapes and forms.

Talk with your child about the artwork they completed in this project and find a place to display their final art project at home.

You may also want to practise English with your child by reviewing the vocabulary presented in this project:

Key Vocabulary

Architect, building, city, design, skyline

More words

Capital cities, city, neighbourhood, town, village

Places in a city: art museum, city hall, bank, fire station, hospital, police station, school, shopping centre, sports centre, etc.

Materials from home

To participate in the final art project, please send the following materials with your child to class by the requested date.

- Recycled materials: cardboards rolls, plastic containers, small boxes, etc. Date:

Best wishes,

Art Teacher