

# Computing Year 5 2016 - 2017

## Unit 5.6 We are Architects

## Step 1: Exploring art galleries

Karin Clark

Learning Expectations	Main Session	Resources and e-safety
<p>This unit will enable the children to:</p> <ul style="list-style-type: none"> <li>◆ understand the work of architects, designers and engineers working in 3D</li> <li>◆ develop familiarity with a simple CAD (computer aided design) tool</li> <li>◆ develop spatial awareness by exploring and experimenting with a 3D virtual environment develop greater aesthetic awareness.</li> </ul>	<p>Share the <i>Learning expectations</i> for the unit and explain the success criteria.</p> <p>Tell the pupils that they are going to create a virtual art gallery in which to display their artwork.</p> <p>Model the interface for Google Art Project. Click <i>Collections</i> to view a list of museums and select one that provides a virtual tour (e.g. the National Gallery in London). Invite pupils to explore some of the galleries for themselves. Ask them to investigate common features of these galleries, as well as finding examples of art gallery architecture and design they think is especially effective. Encourage them to look at how the art is displayed. How are the paintings grouped together? How much space does each have?</p>	<p>The usual precautions should be followed when the pupils are using the internet for their research; this includes searching for objects in Trimble's online warehouse.</p> <p>If the pupils will be sharing their creations online, follow all the relevant school policies, taking particular care to limit the sharing of personal information.</p> <p>If using Google Earth to locate real or imaginary buildings, the pupils should not share the location of their home, and you should check with your school leadership team before sharing the location of the school.</p>
<p>Curriculum links in this Unit</p>	<p>Brainstorm the characteristics of art galleries. Invite children to continue their investigations using Google, encouraging them to look at galleries or museums in other countries.</p> <p>Bringing the class back together, refine the list of characteristics in the light of the pupils' research, and collate the examples they provide. You could use these as additional success criteria for the project.</p>	<p>When uploading examples of work to the virtual gallery, respect the intellectual property of the original artists, acknowledging sources by attaching virtual labels to the work.</p>
Literacy		<p>Google Art Project:  <a href="http://www.googleartproject.com">www.googleartproject.com</a></p>
Numeracy		
Science		<p>Virtual tour of the National Gallery, London:  <a href="http://www.google.com/culturalinstitute/collection/the-national-gallerylondon?museumview&amp;projectId=artproject">www.google.com/culturalinstitute/collection/the-national-gallerylondon?museumview&amp;projectId=artproject</a></p>
Art & Design		
Music		
DT		
Geography		<p>Virtual art gallery: <a href="http://www.3dvas.com">www.3dvas.com</a>            Some contemporary gallery architecture: <a href="http://www.e-architect.co.uk/art_gallery_buildings.htm">www.e-architect.co.uk/art_gallery_buildings.htm</a></p>

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### Unit 5.6

### Step 2: Creating a virtual sculpture Karin Clark

Learning Expectations	Main Session	Resources and e-safety
<p>This unit will enable the children to:</p> <ul style="list-style-type: none"> <li>◆ understand the work of architects, designers and engineers working in 3D</li> <li>◆ develop familiarity with a simple CAD (computer aided design) tool</li> <li>◆ develop spatial awareness by exploring and experimenting with a 3D virtual environment</li> <li>◆ develop greater aesthetic awareness.</li> </ul>	<p>Introduce the pupils to SketchUp and then ask them to explore the interface for themselves. Encourage them to share what they discover with one another.</p> <p>Demonstrate how to navigate the 3D environment using the orbit, pan and zoom tools on the standard toolbar. Show how to bring up the large tool set and demonstrate the walk and look around tools. Encourage pupils to experiment with these further themselves.</p> <p>Demonstrate how to draw 2D shapes and extrude these into 3D. Encourage the pupils to experiment with this and share their discoveries with one another.</p> <p>Show how to select objects, faces and edges. Show how each of these can be moved, and encourage the pupils to experiment with these techniques further.</p>	<p>The usual precautions should be followed when the pupils are using the internet for their research; this includes searching for objects in Trimble's online warehouse.</p> <p>If the pupils will be sharing their creations online, follow all the relevant school policies, taking particular care to limit the sharing of personal information.</p> <p>If using Google Earth to locate real or imaginary buildings, the pupils should not share the location of their home, and you should check with your school leadership team before sharing the location of the school.</p> <p>When uploading examples of work to the virtual gallery, respect the intellectual property of the original artists, acknowledging sources by attaching virtual labels to the work.</p>
<p>Curriculum links in this Unit</p>	<p>Show pupils a few online examples of geometrically inspired sculpture, such as that of Barbara Hepworth, Carl Andre and John Robinson (see the links in <i>Resources</i>). You may also like to remind them of the work created in <i>Unit 5.3 – We are artists</i>. Ask the pupils to use SketchUp to create a simple geometric sculpture. Some pupils may benefit from first making a sculpture using building blocks before recreating it as closely as possible in SketchUp.</p> <p>Encourage the pupils to request and provide feedback from one another on their SketchUp sculptures, and give them time to refine them in the light of this feedback.</p> <p>If time is available, show a video about 3D printing (see <i>Resources</i>). Discuss how this technology works, and ask the pupils to suggest some possible applications.</p>	<p>SketchUp tutorials: <a href="http://www.sketchup.com/learn/videos?playlist=58">www.sketchup.com/learn/videos?playlist=58</a> and <a href="http://www.youtube.com/watch?v=y9PEdmfW7Ig&amp;list=SP2A29A6B9E312A112">www.youtube.com/watch?v=y9PEdmfW7Ig&amp;list=SP2A29A6B9E312A112</a></p> <p>3D printing video: <a href="http://www.ted.com/talks/lisa_harouni_a_primer_on_3d_printing.html">www.ted.com/talks/lisa_harouni_a_primer_on_3d_printing.html</a></p> <p>Geometrically inspired sculpture: <a href="http://barbarahepworth.org.uk">http://barbarahepworth.org.uk</a>, <a href="http://www.carlandre.net">www.carlandre.net</a>, <a href="http://www.bradshawfoundation.com/jr">www.bradshawfoundation.com/jr</a></p>
<p>Literacy ✓</p> <p>Numeracy ✓✓✓</p> <p>Science ✓✓✓</p> <p>Art &amp; Design ✓✓✓</p> <p>Music ✓</p> <p>DT ✓✓</p> <p>Geography ✓</p>		

## Computing Year 5 Computing Year 5 2016 - 2017

### Unit 5.6

### Step 3: Creating a prototype of the game

Karin Clark

Learning Expectations	Main Session	Resources and e-safety
<p>This unit will enable the children to:</p> <ul style="list-style-type: none"> <li>◆ understand the work of architects, designers and engineers working in 3D</li> <li>◆ develop familiarity with a simple CAD (computer aided design) tool</li> <li>◆ develop spatial awareness by exploring and experimenting with a 3D virtual environment</li> <li>◆ develop greater aesthetic awareness.</li> </ul>	<p>Ask the pupils to begin work on their virtual galleries Encourage pupils to review their sketches from Step 1, revising them in the light of what they've learned.</p> <p>Suggest that it's best to concentrate on the main room of the gallery, adding other rooms if time permits. Ask pupils to sketch out a ground plan for their gallery in SketchUp.</p> <p>The pupils should then add individual walls to the gallery, possibly leaving one wall until later to make access to the interior of the space easier. Remind them that normally the walls will all be the same height. They should create gaps in the walls for doors and, if they wish, windows.</p> <p>Encourage the pupils to review one another's galleries at this point, revising them on the basis of the feedback received. The pupils could use the navigation tools in SketchUp to explore their gallery from different perspectives.</p> <p>Demonstrate how to add a ceiling, and how to cut holes in the ceiling to create skylights.</p> <p>If time permits, the pupils could add further rooms to their gallery, connecting them with doorways and/or corridors, staircases and lifts. Ask them to get further feedback on their galleries, making modifications based on this.</p> <p>The pupils could explore the texture options for the surfaces they create, keeping in mind that they will be hanging their artwork on the walls.</p> <p>Ask the pupils to pay attention to both the internal and external features of their space. Some feedback from you and their classmates at this stage would be useful.</p>	<p>The usual precautions should be followed when the pupils are using the internet for their research; this includes searching for objects in Trimble's online warehouse.</p> <p>If the pupils will be sharing their creations online, follow all the relevant school policies, taking particular care to limit the sharing of personal information.</p> <p>If using Google Earth to locate real or imaginary buildings, the pupils should not share the location of their home, and you should check with your school leadership team before sharing the location of the school.</p> <p>When uploading examples of work to the virtual gallery, respect the intellectual property of the original artists, acknowledging sources by attaching virtual labels to the work.</p> <p>Trimble SketchUp training video for this step: <a href="http://www.youtube.com/watch?v=hIXsuOjk7gs">www.youtube.com/watch?v=hIXsuOjk7gs</a></p>
Curriculum links in this Unit		
Literacy	✓	
Numeracy	✓✓✓	
Science	✓✓✓	
Art & Design	✓✓✓	
Music	✓	
DT	✓✓	
Geography	✓	

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## Unit 5.6

## Step 4: Adding furniture to the gallery

Karin Clark

Learning Expectations	Main Session	Resources and e-safety
<p>This unit will enable the children to:</p> <ul style="list-style-type: none"> <li>◆ understand the work of architects, designers and engineers working in 3D</li> <li>◆ develop familiarity with a simple CAD (computer aided design) tool</li> <li>◆ develop spatial awareness by exploring and experimenting with a 3D virtual environment</li> <li>◆ develop greater aesthetic awareness.</li> </ul>	<p>Ask pupils to look back at the images or tours of art galleries that they explored in Step 1, this time focusing on the furniture, fixtures and fittings of these spaces. Ask pupils to compile a 'shopping list' of all the furniture they might need.</p> <p>Ask the pupils to list, or sketch, a few ideas for the furniture they would like inside their gallery. Introduce them to the 3D Warehouse on SketchUp, and ask them to search for examples of, for instance, benches. Ask them to think carefully about how the search engine in the 3D Warehouse (provided by Google) selects and ranks the results. Spend some time discussing this. Ask the pupils which bench would look best in their gallery. Ask them to think about what criteria they will use to make this decision.</p>	<p>The usual precautions should be followed when the pupils are using the internet for their research; this includes searching for objects in Trimble's online warehouse.</p> <p>If the pupils will be sharing their creations online, follow all the relevant school policies, taking particular care to limit the sharing of personal information.</p> <p>If using Google Earth to locate real or imaginary buildings, the pupils should not share the location of their home, and you should check with your school leadership team before sharing the location of the school.</p>
<p>Curriculum links in this Unit</p>	<p>Demonstrate how to import a bench into a gallery and position it appropriately (File &gt; 3D Warehouse &gt; Get models, then search, select, download and simply position). Demonstrate how copy and paste work so that the pupils can add more than one bench if they want to. Show how the bench can be rotated horizontally if needed.</p>	<p>When uploading examples of work to the virtual gallery, respect the intellectual property of the original artists, acknowledging sources by attaching virtual labels to the work.</p>
<p>Literacy ✓</p>		<p>Google Art Project: <a href="http://www.googleartproject.com">www.googleartproject.com</a></p>
<p>Numeracy ✓✓✓</p>		<p>Some contemporary gallery architecture: <a href="http://www.e-architect.co.uk/art_gallery_buildings.htm">www.e-architect.co.uk/art_gallery_buildings.htm</a></p>
<p>Science ✓✓✓</p>	<p>Ask the pupils to spend time adding appropriate furniture, fixtures and fittings to their gallery from the 3D Warehouse. Encourage the pupils to think of the overall style and design of their gallery, and to be selective in choosing furniture and fittings for it. Remind them that the furniture should not detract from the art.</p>	<p>See <a href="http://www.youtube.com/watch?v=GTDofEckgU">www.youtube.com/watch?v=GTDofEckgU</a> for a tutorial on the 3D Warehouse Trimble SketchUp training video for this step: <a href="http://www.youtube.com/watch?v=lahlYgNlr2c">www.youtube.com/watch?v=lahlYgNlr2c</a></p>
<p>Art &amp; Design ✓✓✓</p>		
<p>Music ✓</p>		
<p>DT ✓✓</p>	<p>Provide an opportunity for pupils to critique one another's choices, and allow them to replace furniture if they are unhappy with their original choice.</p>	
<p>Geography ✓</p>		

Learning Expectations	Main Session	Resources and e-safety
<p>This unit will enable the children to:</p> <ul style="list-style-type: none"> <li>◆ understand the work of architects, designers and engineers working in 3D</li> <li>◆ develop familiarity with a simple CAD (computer aided design) tool</li> <li>◆ develop spatial awareness by exploring and experimenting with a 3D virtual environment</li> <li>◆ develop greater aesthetic awareness.</li> </ul>	<p>Ask the pupils to browse through their home directories/ e-portfolios/blogs for any examples of digital artwork that they could display in their virtual gallery. This could include examples from <i>Unit 5.3 – We are artists</i>.</p> <p>If the children have other, non-digital, artwork in school or at home that they'd like to include, they can take photographs of this or use scanners to produce digitised versions. It's normally quicker and more flexible to use digital photographs, and you may need to show the children how to operate a scanner if they have not used one before.</p> <p>Ask the pupils to plan the layout of their gallery. Where will they hang the various pieces of artwork that they have chosen? How will they organise the layout? Discuss possible strategies, perhaps considering the path they hope their gallery visitors will take around the gallery, or the available lighting.</p>	<p>The usual precautions should be followed when the pupils are using the internet for their research; this includes searching for objects in Trimble's online warehouse.</p> <p>If the pupils will be sharing their creations online, follow all the relevant school policies, taking particular care to limit the sharing of personal information.</p> <p>If using Google Earth to locate real or imaginary buildings, the pupils should not share the location of their home, and you should check with your school leadership team before sharing the location of the school.</p> <p>When uploading examples of work to the virtual gallery, respect the intellectual property of the original artists, acknowledging sources by attaching virtual labels to the work.</p>
<p>Curriculum links in this Unit</p>	<p>Explain that the work on display need not be restricted to art. Their gallery could become an extendable virtual e-portfolio. Model how to import images or PDF files to the gallery (use File &gt; Import, select the file type and choose Use as image). The pupils should import and place their work on the walls of their gallery, experimenting with different layouts. At this point they may need to add the final wall, if they have not already done so.</p> <p>Remind the pupils that they should also add the sculpture they created in Step 2, again using File &gt; Import. Encourage the pupils to share their galleries with one another, making changes to the layout and contents on the basis of the feedback they receive.</p>	<p>Trimble SketchUp training video for this step: <a href="http://www.youtube.com/watch?v=hPxGAXI4VkJ">www.youtube.com/watch?v=hPxGAXI4VkJ</a></p>
Literacy	✓	
Numeracy	✓✓✓	
Science	✓✓✓	
Art & Design	✓✓✓	
Music	✓	
DT	✓✓	
Geography	✓	

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## Unit 5.6

## Step 6: Creating a virtual tour of the gallery

Karin Clark

Learning Expectations	Main Session	Resources and e-safety
<p>This unit will enable the children to:</p> <ul style="list-style-type: none"> <li>◆ understand the work of architects, designers and engineers working in 3D</li> <li>◆ develop familiarity with a simple CAD (computer aided design) tool</li> <li>◆ develop spatial awareness by exploring and experimenting with a 3D virtual environment</li> <li>◆ develop greater aesthetic awareness.</li> </ul>	<p>Tell the pupils they are now going to create a virtual tour of their gallery that could be used by people considering whether to visit.</p> <p>Ask the pupils to create different views of their gallery, adding these as scenes within a SketchUp animation (use View &gt; Animation &gt; Add Scene). They should think in terms of using the animation to tell the story of a visit to their gallery. Demonstrate how the animation settings can be changed to set the duration of each view and the time for transitions between views (use View &gt; Animation &gt; Settings). Once the pupils are happy with their animations, ask them to record a screencast using Screencast-o-matic, ideally with a spoken commentary, discussing the artwork displayed as well as features of the gallery (such as the furniture or skylights) that might be useful for a visitor to know.</p>	<p>The usual precautions should be followed when the pupils are using the internet for their research; this includes searching for objects in Trimble's online warehouse.</p> <p>If the pupils will be sharing their creations online, follow all the relevant school policies, taking particular care to limit the sharing of personal information.</p> <p>If using Google Earth to locate real or imaginary buildings, the pupils should not share the location of their home, and you should check with your school leadership team before sharing the location of the school.</p>
<p>Curriculum links in this Unit</p>	<p>The pupils could import their screencast into Movie Maker® to edit it further, or use this software to record their narration after changing the length of time for some shots. Use a final plenary for the pupils to watch the screencast tours. If your school's e-safety policy permits, you could upload the tours to the learning platform, class blog or a video sharing site.</p>	<p>When uploading examples of work to the virtual gallery, respect the intellectual property of the original artists, acknowledging sources by attaching virtual labels to the work.</p> <p>Trimble SketchUp training video for this step: <a href="http://www.youtube.com/watch?v=hJyLxBgl1NM">www.youtube.com/watch?v=hJyLxBgl1NM</a></p>
Literacy	✓	
Numeracy	✓✓✓	
Science	✓✓✓	
Art & Design	✓✓✓	
Music	✓	
DT	✓✓	
Geography	✓	
	<p>Invite the pupils to provide each other with constructive feedback. They should evaluate the success of their virtual space using the criteria for effective gallery design they established at the beginning of the unit.</p> <p>If time permits, the pupils could work together to develop a larger 'meta gallery', made by combining all the individual galleries together to produce a single, shared space in which the class's artwork is displayed. Some pupils could work together to produce virtual tours of this space.</p>	