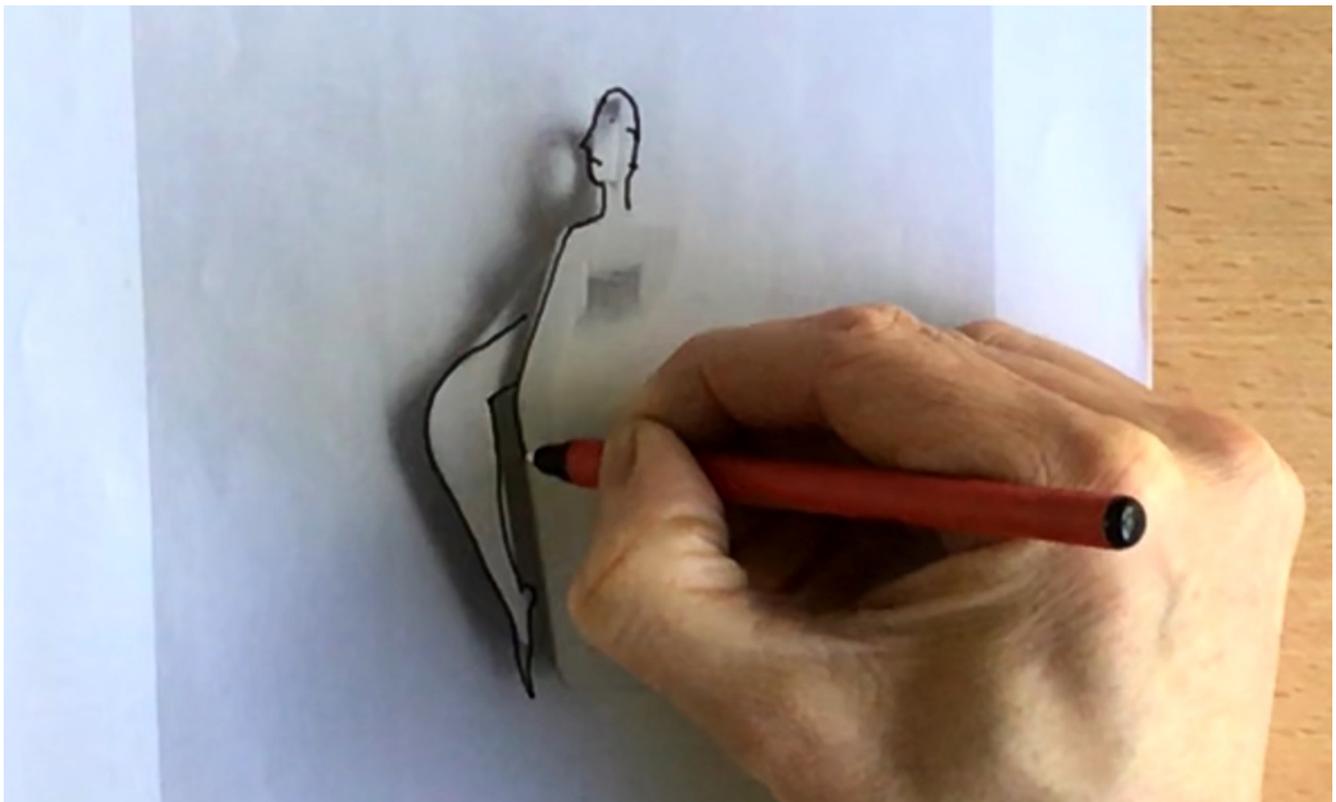


Adaptation Drawing

This is the fourth of six resources in the series: [‘Drawing for Science, Invention & Discovery Even If You Can’t Draw’](#) by Paul Carney, educational consultant and author. The projects enable teachers of both art and science to approach drawing from a new perspective. You can see all of the resources [here](#).

[By Paul Carney](#)

Introduction: This session is designed to explain the cognitive approach used by scientists to utilise the properties of one material for another, quite different purpose. It will also assist in developing pupil’s ability to cognitively imagine and invent.



Notes for Teachers

• Learning Objectives

- To explain the scientific principle of extracting and adapting the properties of materials for other purposes.
- To develop the ability to imagine and invent creatively.

• Age Range

Suitable for 7-16 years.

• Time Required

The activity takes approximately one hour.

• National Curriculum Targets: Art & Design

A high-quality art and design education should engage, inspire and challenge pupils, equipping them with the knowledge and skills to experiment, invent and create their own works of art, craft and design.

• National Curriculum Targets: Science

The national curriculum for science aims to ensure that all pupils develop scientific conceptual understanding and also develop understanding of the nature, processes and methods of science.

• Things You'll Need

Photo resources of objects, or small junk objects to draw. Pencils and/or fineliner pens.

▪ **Extending The Lesson**

You should relate this lesson to further investigations into how scientists use adaptation to innovate. A good example of this is Biobricks, blocks of DNA that are used to design and assemble larger, synthetic biological circuits. See <https://biobricks.org/>

▪ **Supporting The Lesson**

Show how Japanese scientists solved the problem of sonic boom on their high-speed trains by looking at the beak of a kingfisher. <https://www.bbc.co.uk/news/av/science-environment-47673287/how-a-kingfisher-helped-reshape-japan-s-bullet-train>

▪ **Assessment Guidance**

Look for originality in execution of ideas rather than skill in execution. Ideas based on the face, the human form, animals or birds are common.

▪ **Artist Links**

Look at the artwork of David Mach or Christoph Niemann and how they adapt materials or forms to suit imaginative solutions.

<https://www.davidmach.com/>

<https://www.christophniemann.com/>

▪ **Cross-Curricular**

How might we use knowledge we gain in one subject for another, quite different purpose? E.g. can history help us predict the future? Can we use art skills in science or maths? Might learning a language help us become better at sport?

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Trial and Error Drawing

Methodical Drawing

Serendipity Drawing

Rowan: Clay Coiling Techniques to Make Penguins, Tweety Pie and a Dalek too!

Artist led facilitation in a setting for adults with learning disabilities; Abi, Sarah and students show how they made clay birds using clay coiling techniques and with a plaster mould for the birds' bases.

Pathway: Sculpture, Structure, Inventiveness & Determination

Pathway for Years 3 & 4

Disciplines:

Drawing, Sketchbooks, Sculpture

Key Concepts:

- That artists can learn from the world around them. That artists can draw parallels with other beings/events to help us understand things about ourselves.
- That artists take creative risks. That artists try to say new things by manipulating and representing the materials of the world.
- That we can feel safe enough to take creative risks in our own work. That we can explore materials and ideas feeling free from criticism.
- That we can express our personality through the art we make.
- That we can use materials, tools and the ideas in our head to explore line, shape, form, balance and structure.
- That making art can be hard, but that doesn't mean we aren't doing it right or aren't good at it. It just means we are doing it.

In this pathway children explore formal drawing and sculpture skills like line, mark making, shape, form, balance and structure, but they also just as importantly explore how it *feels* to make

art. They explore how they can appreciate a sense of challenge, and a feeling of trying things out without fear of failure or “wrong or right”.

Pupils start by seeing how artists sometimes help us learn about ourselves by drawing parallels with other lives. Pupils apply this knowledge by looking at how birds build nests – what can we learn from them about the traits we might show when we make experimental drawings and build sculpture?

Medium:

Various Drawing Materials, Construction Materials

Artists: Marcus Coates

This pathway will take approximately half a term, based upon a weekly art lesson.

If you use this resource in your setting, please tag us on social media: #InspiredBy @accessart (facebook, twitter) @accessart.org.uk (instagram) and share the url. Thank you!





AGES 5-8

AGES 9-11

Teaching Notes

Find the MTP for this pathway [here](#).

[See the recording of the hour long zoom CPD to introduce teachers to this pathway.](#)

Curriculum Links

Geography: Link with birds and migration via the North and South hemisphere.

Science: Language to support understanding of materials, habitats.

PSHE: Supports Responsibility to the planet, Collaboration, Peer Discussion.

I Can...

- I have seen how we can learn about ourselves through art.
- I can feel safe to take creative risks when I work. I can enjoy the feeling of experimenting with materials.
- I can feel ok when I am being challenged by materials and ideas. I can feel ok when I don't know exactly what I'm doing.
- I can use a variety of drawing materials to make experimental drawings based upon observation.
- I can construct with a variety of materials to make a sculpture.

- I can see my personality in what I have made.
 - I can talk about the work I have made with my classmates, sharing the things I thought were successful and thinking about things I would like to try again.
 - I can appreciate the work of my classmates and I can share my response to their work, identifying similarities and differences in our approach and outcomes.
 - I can take photographs of my work thinking about presentation, focus and lighting.
-

Time

This pathway takes 6 weeks, with an hour per week. Shorten or lengthen the suggested pathway according to time and experience. Follow the stages in green for a shorter pathway or less complex journey.

Materials

A3 cartridge paper, soft B and hard H pencils, ink, graphite sticks, water soluble graphite, wax crayons, water colour.

Construction Materials (see [list here](#))

Pathway: Sculpture, Structure, Inventiveness & Determination

A PDF of this pathway can be found [here](#).

• Aims of the Pathway

This pathway aims to provide children with the opportunity to connect drawing and making, encouraging the freedom to be inventive and exploratory.

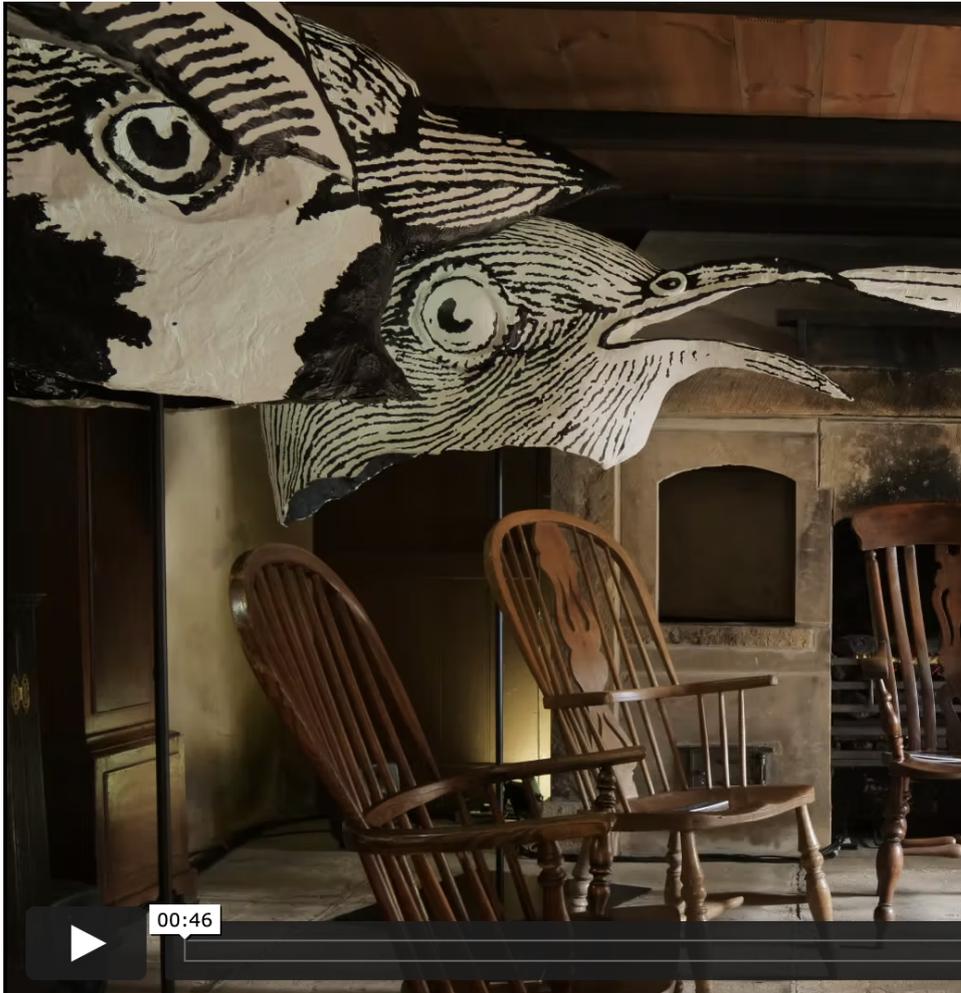
The processes involved ask children to take creative risks, and to feel ok if they feel challenged by creating art.

• Week

1:

Introduce

**Introduce artists who are
inspired by things that birds
can teach us**



Marcus Coates, Conference of the Birds, 2019,
Film by Kate MacGarry

Use the free to access [“Talking Points: What Can We Learn From Birds!”](#) resource to explore how artists draw parallels with other beings so that we can learn about ourselves.

▪ Weeks 2 & 3: Exploratory Mark Making

Drawing Nests



Use the “[Drawing Nests](#)” resource to explore how pupils can use a variety of media to create observed and expressive drawings of nests.

The resource explores how their drawings might feel relatively “neat” or might feel “messy” – both are fine! We are able to express our personality through art!

Use sketchbooks to test materials. If children need drawing source material use our free to access “[Drawing Source Material: Nests](#)” resource. Invite children to create their own “[Experimental Mark Making Tools](#)” to create expressive and personal drawings.

Stop at the making activity (you will do that next week).

Explore the resource below to see a similar activity in a school:

Nests: Materials, Tools, Testing & Sketchbooks

Nests: Observational Ink Drawing

Nests: Wet and Dry Media



▪ Weeks

4

&

5:

Making

Making Nests



Use the [“Perseverance, Determination and Inventiveness: Building Nests”](#) resource to encourage children to explore how we practice and nurture valuable life skills when we make sculpture. The resource takes its starting point from what it must be like to be a bird, and place those first tentative twigs in place when nest building begins. How can children use their own instinct and intuition to make sculpture?

▪ Week 6: Present & Share

Share, Reflect & Discuss



Use the “[Crit](#)” resource to help you run a class critique.

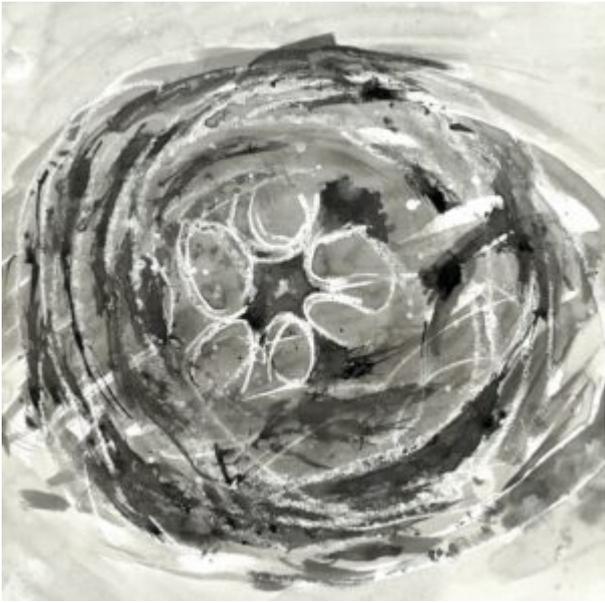
Clear a space and present drawings, sketchbooks and sculptures made.

Walk around the space as if it were a gallery. Enable a conversation about the journey and skills learnt (personality traits as well as technical skills).

Take photographs of the work. [Explore how children can take high quality photographs of 3d artwork with this resource.](#)

See the Pathway Used in Schools...















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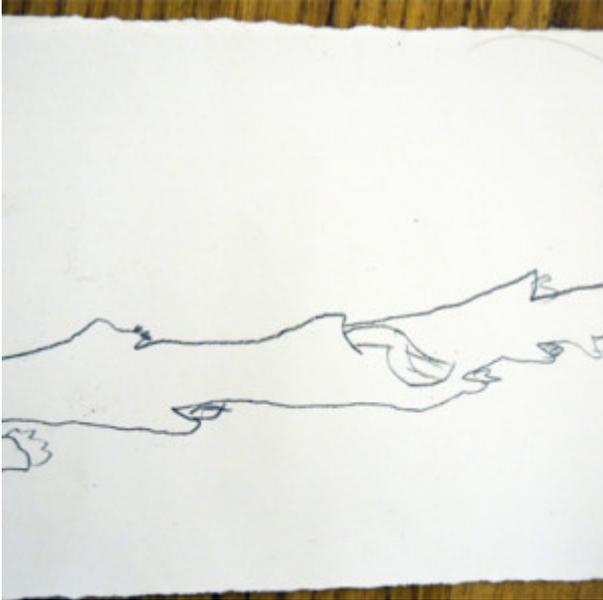
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You May Also Like...

Help Children draw larger



Encourage children to work larger so that they can fully explore a wider range of mark making/materials/techniques

Miro

Animation

Wave Bowls

Marionettes

Sculpture Balance

Pathway: Exploring Identity

Pathway for Years 5 & 6

Disciplines:

Collage, Drawing, Sketchbooks

Key Concepts:

- That artists embrace the things which make them who they are: their culture, background, experiences, passions – and use these in their work to help them create work which

others can relate to.

- That people are the sum of lots of different experiences, and that through art we can explore our identity.
- That we can use techniques such as working with layers to help create imagery which reflects the complex nature of our identities.
- That as viewers we can then “read” imagery made by other people, unpicking imagery, line, shape, colour to help us understand the experience of the artist.

In this pathway children are introduced to artists who explore their identity within their art.

Pupils explore how artists use various aspects of their identity, creating imagery which explores many different aspects within one image by using layers and juxtaposition. Children listen to how the artists construct their work, before working physically in drawing and collage or digitally on a tablet to make their own layered and constructed portrait.

Pupils also use sketchbook throughout to help them generate ideas, experiment with materials and techniques, and record and reflect.

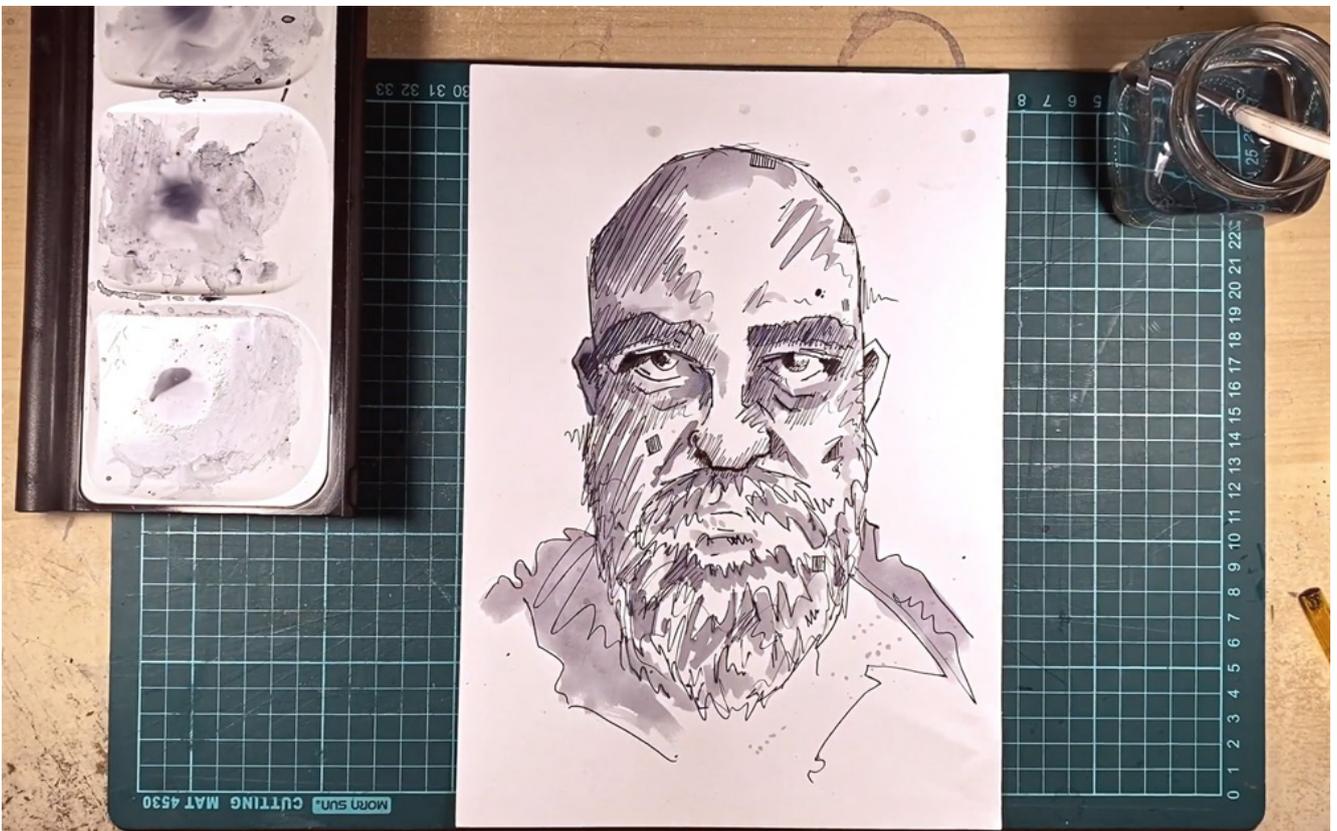
Medium:

Drawing Materials, Tablet (if digital), Paper

Artists: Njideka Akunyili Crosby, Yinka Shonibare, Thandiwe Muriu, Mike Barrett

This pathway will take approximately half a term, based upon a weekly art lesson.

If you use this resource in your setting, please tag us on social media: #InspiredBy @accessart (facebook, twitter) @accessart.org.uk (instagram) and share the url. Thank you!





AGES 9-11

Teaching Notes

Find the MTP for this pathway [here](#).

[Curriculum Links](#)

History: Explore the identity of a figure from your chosen history topic.

PSHE: Collaboration, Peer Discussion, Different Religions, Ethnic Identity.

I Can...

- I have seen how artists explore their identity by creating layered and constructed images. I can share my response to their work with my classmates.**
- I can use my curiosity to think about how I might adapt techniques and processes to suit me.**
- I can use my sketchbook to record, generate ideas, test, reflect and record.**
- I can work digitally or physically to create a layered portrait to explore aspects of my identity, thinking about line, shape, colour, texture and meaning.**
- I can share my work with my classmates, articulate how I feel about the journey and outcome. I can listen to feedback from my classmates and respond.**
- I can appreciate the work of my classmates and I can reflect upon the differences and similarities of their work (and experience) to mine. I can share my response to their work.**

I can take photographs of my artwork, thinking about lighting, focus and composition.

Time

This pathway takes 6 weeks, with an hour per week. Shorten or lengthen the suggested pathway according to time and experience. Follow the stages in green for a shorter pathway or less complex journey.

Materials

Soft B pencils, handwriting pens, sharpies, oil/chalk pastels, acrylic or ready mixed paints, inks, brushes, A4 cartridge paper, collage papers, digital devices (tablets) if working digitally.

Pathway: Exploring Identity

A PDF of this pathway can be found [here](#).

• Aims of the Pathway

The aim of this pathway is to enable children

•

to explore how artists embrace aspects of their experience of life – using their background, culture, race, gender, and interests to inform and shape their artwork.

▪ Week

1:

Introduce

Discover Artists & Approaches

Explore the free to access Talking Points below and introduce pupils to artists who work with notions about identity.

Explore as few or as many of the artists

below as you would like:

- [Talking Points: Njideka Akunyili Crosby](#)
- [Talking Points: Yinka Shonibare](#)
- [Talking Points: Thandiwe Muriu](#)

Have sketchbooks open and make time during the exploration to use the "[Making Visual Notes](#)" resource. For example pupils might make references, collect ideas, jot down methods of working, draw equivalents etc.

▪ Week 2: Sketchbook work

Portrait Club



Bring portraiture into the classroom in a light-hearted flexible way with the “[Portrait Club](#)” resource. Encourage open and intuitive observational drawing.

- Weeks 3, 4 & 5: Explore & Create

Making Layered Portraits



Use the “[Let Me Inspire You: Mike Barrett](#)” resource to enable a physical (using drawing materials, paper, collage), or digital exploration of how to make a layered portrait which captures aspects of your personality and identity.

The resource consists of 4 parts: a video from Mike introducing himself and then 3 stepped stages to the project.

Use sketchbooks throughout to help explore and focus, test and reflect.



Share, Reflect, Discuss



Time to see the work which has been made, talk about intention and outcome.

If you have class cameras or tablets, invite the children to document the work, thinking about lighting, focus and composition.

[Use the resource here to help you run a class "crit" to finish the project.](#)

See the Pathway Used in Schools...

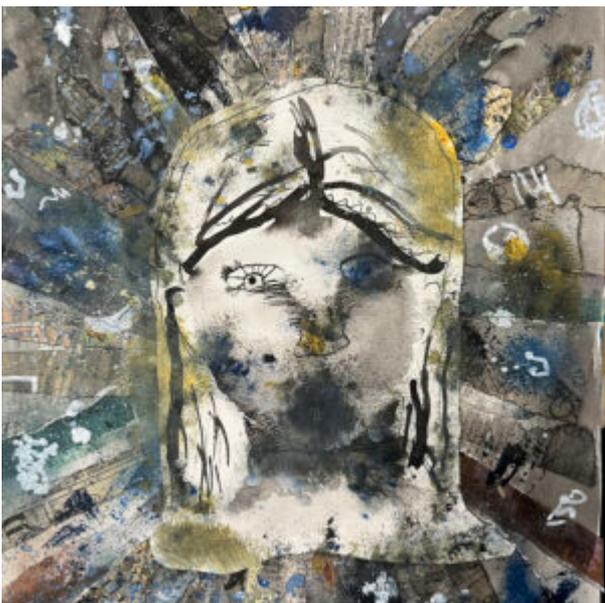














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Self Portraiture photography



Explore photography, drawing and mixed media activities

Celebrating class success



Create large scale drawings of classmates using pastels

Exploring Portraits



[Explore features through collage, clay and/or print](#)

escaping wars and waves by Olivier Kugler



[Explore Illustrator Olivier Kugler Book exploring stories of Syrian Refugees](#)

Repetitive Life Drawing Exercise



Create continuous line drawings of classmates inspired by Matisse

Pathway: Fashion Design

Pathway for Years 5 & 6

Disciplines:

Fashion, Painting, Collage, Sketchbooks

Key Concepts:

- That designers bring their own culture, experiences and passions into their designs, for other people.
- That as individuals we can grow our

experience of the world by experiencing (seeing, listening, taking the time to understand) the creativity expressed by other people.

- That we can use colour, pattern, line, shape, form, material, texture to express our creativity.
- That when we design fashion, we can understand what it might feel like to wear the clothes. How would they change the person wearing or seeing them?
- That when we design clothes, we can build an awareness of how 2d shapes might become 3d forms.

In this pathway children are introduced to the idea that design is often about relationships – between the designer/artist and the person who then sees, buys or wears the end result. Where and how do the experiences and passions of both designer and viewer meet? How is one affected by the other and what can we learn from each other?

Children are introduced to contemporary fashion designers and use sketchbooks to record things about the designers which interest them, or to note ways of working which may be useful.

Pupils are then given a design brief and invited to make their own designs, again working in sketchbooks to explore and test, before making

decorate papers through which they can bring their designs to life in 2d or 3d.

Medium:

Paper, Acrylic Paint, Tape

Artists: Alice Fox, Rahul Mishra, Pyer Moss, Tatyana Antoun, Hormazd Narielwalla

If you use this resource in your setting, please tag us on social media: #InspiredBy @accessart (facebook, twitter) @accessart.org.uk (instagram) and share the url. Thank you!







AGES 9-11

Teaching Notes

Find the MTP for this pathway [here](#).

[Curriculum Links](#)

Geography: Trade links and the history of importing textiles from other continents.

History: Design clothing inspired by your chosen civilisation topic e.g. Ancient Greek elite,

slaves, gods or goddesses.

Maths: 2D / 3D shapes, measuring.

Music & Drama: Create costumes for, or in response to, drama or music productions.

PSHE: Responsibility to the planet, Collaboration, Peer Discussion, Different Religions, Ethnic Identity.

I Can...

- I have explored the work of contemporary fashion designers and I can see how their interests and experiences feed into their work.
- I can share my own response to their work, articulating what I like or don't like about their work.
- I can use my sketchbook to make visual notes to capture key ideas about how the designers work.
- I can listen to a design brief, and use my sketchbook to generate and test ideas, explore colour, line, shape, pattern in response to the brief.
- I can use my sketchbook work to inform how I make a 2d (or 3d) design, using paint, paper

and collage.

- I can understand how 2d shapes can become 3d form and the relationship they have to our bodies.
 - I can share my designs and outcomes with my classmates and articulate my journey. I can listen to their feedback and respond.
 - I can appreciate the work of my classmates and reflect upon similarities and differences. I can share my response to their work.
 - I can take photographs of my work, thinking about presentation, lighting and focus.
-

Time

This pathway takes 6 weeks, with an hour per week. Shorten or lengthen the suggested pathway according to time and experience. Follow the stages in green for a shorter pathway or less complex journey.

Materials

Soft B pencils, graphite, handwriting pens, sharpies, coloured pencils, watercolour, acrylic paint, brushes, assorted coloured papers and

fabrics, A4 cartridge paper, cardboard or wooden mannequins, clear tape (and ideally tape holders), scissors, glue sticks.

Pathway: Fashion Design

A PDF of this pathway can be found [here](#).

.Aims of the Pathway

This pathway aims to present pupils with an opportunity to see how designers work to bring their own background, culture, passions and concerns into their fashion design. The pathway invites pupils to work to a design brief and express their response in two or three dimensions.

▪ Week 1: Introduce

Fashion Designers & Artists

Choose 2 or 3 of the designers below and explore their work via the free to access Talking Points resources.

As you explore as a class, use the “[Making Visual Notes](#)” resource to help pupils to make visual notes in their sketchbooks.



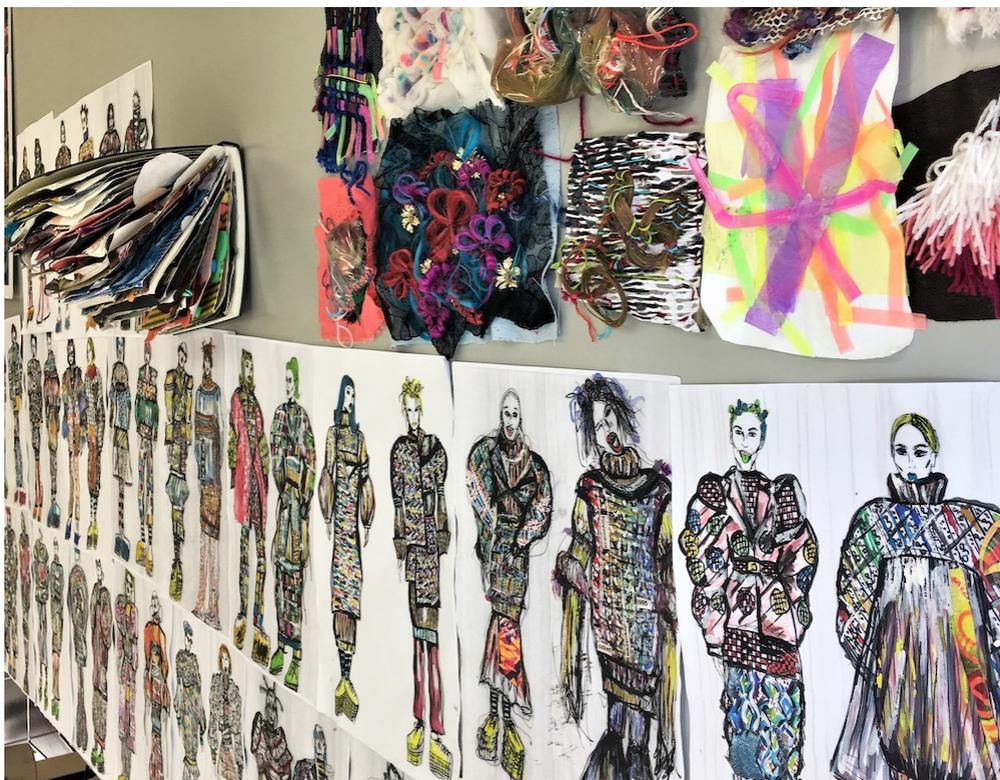
[Alice Fox](#)



[Rahul Mishra](#)



[Pyer Moss](#)



[Tatyana Antoun](#)

▪ Week

2:

Brief

Working in Sketchbooks



Set a design brief. You might decide that pupils have free choice to design whatever fashion they like, or you might like to tie the project in with another curriculum theme, for example designing for another culture, era or geography. Be creative in your brief setting, i.e. If I was living in Ancient Greece, what would I wear which combines what I like about today's fashion, with what they used to wear? Or, If we live on Mars, what might we wear which reminds us of Earth?

Revisit sketchbook work from last week to remind pupils how the designers you looked at work. Pupils will use sketchbooks to generate and test ideas, experiment with shape and form, pattern, colour and texture. They will think creatively about what elements can be added and stuck into sketchbooks, e.g. paper, fabric, thread etc.

Remember: Whatever the theme brief, once you get children to start generating ideas on paper, you must be able to provide suitable paint/paper for next week's session so that they can continue the development.

• Weeks 3, 4, & 5: Explore & Make

Fashion 2D & 3D

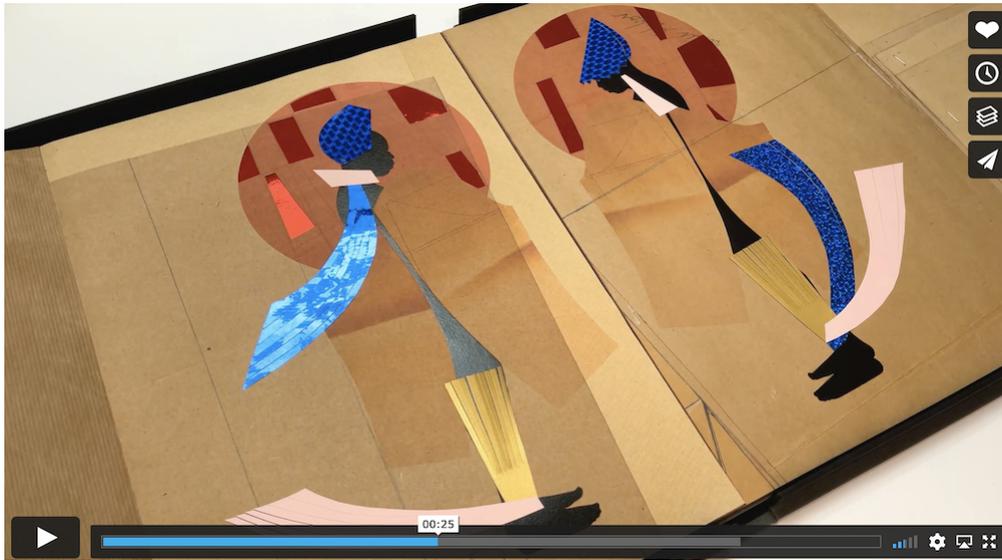


Use the [“Making 2d & 3d Fashion Designs with Painted and Decorated Paper”](#) resource to enable an exploration of fashion design.

Have sketchbooks open so that pupils can refer to previous weeks work, and also encourage them to keep adding to the sketchbooks as they explore and create.

If pupils need inspiration using collage, you

may also like to explore the free to access [“Talking Points: Hormazd Narielwalla”](#) resource.



▪ Week 6: Present and Share

Share, Reflect, Discuss



Time to see the work which has been made, talk about intention and outcome.

Display their work in a clear space, and walk around the work as if they are in a gallery. Give the work the respect it deserves. Remind the children of their hard work.

[Use the resource here to help you run a class "crit" to finish the project.](#)

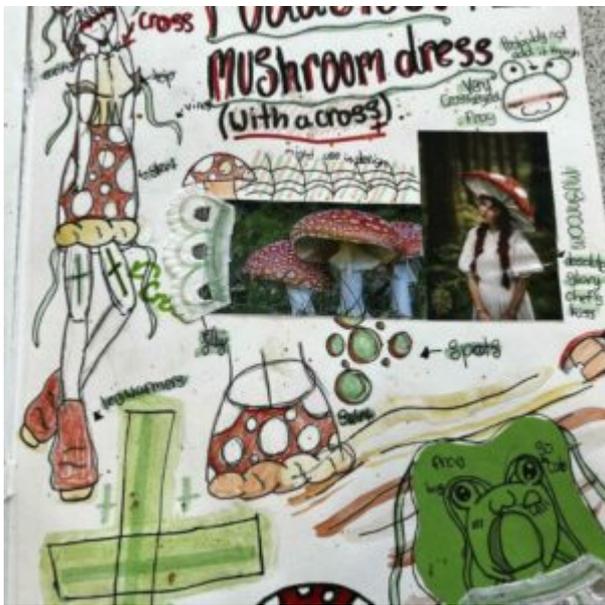
If you have class cameras or tablets, invite the children to document their work, working alone or in pairs, thinking about presentation, lighting and focus. [Explore how children can take high quality photographs of 3d artwork with this resource.](#)

See the Pathway Used in

Schools...















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Osakana



[Painted and Sewn Dress](#)

Psyche's Dress



Co-created Dress Made from Old Clothes

Barbie & Ken transformation



Transform Barbie dolls using paper, fabric, modroc and paint

Puppets inspired by historical paintings



[Take inspiration from paintings to create a pop up puppet](#)

Simple Easter Sketchbook

Perseverance, Determination and Inventiveness: Building Nests

Year 4 pupils from Comberton Village College and Cambourne Village College feeder schools met for a Gifted and Talented Sculpture Masterclass led by AccessArt at Bourn Primary Academy. The session centred around an exploration of the materials and construction methods we might use to build

inventive, sculptural nests.

Playing with tape, projectors, Wicky Sticks and so much more!

Accessible approaches for collaborative drawing with visually impaired students with Sara Dudman and Debbie Locke at the Thelma Hulbert Gallery in Devon

Astronaut Paper Body Casts by Gillian Adair McFarland

A non messy, big impact project in a day on the theme of space exploration to fit with Tim Peake going to the International Space Station.

Rowan: Making a Clay Bird from a Mould

Abi Moore and students show how they made a collection of ceramic birds, from robins and dotterels to ducks using a

plaster mould and coloured slip glazes to create individual and unique pieces.

Art Curriculums: How to Get Started and Avoid Overwhelm

Artist Studio Series: Emma Sandham King