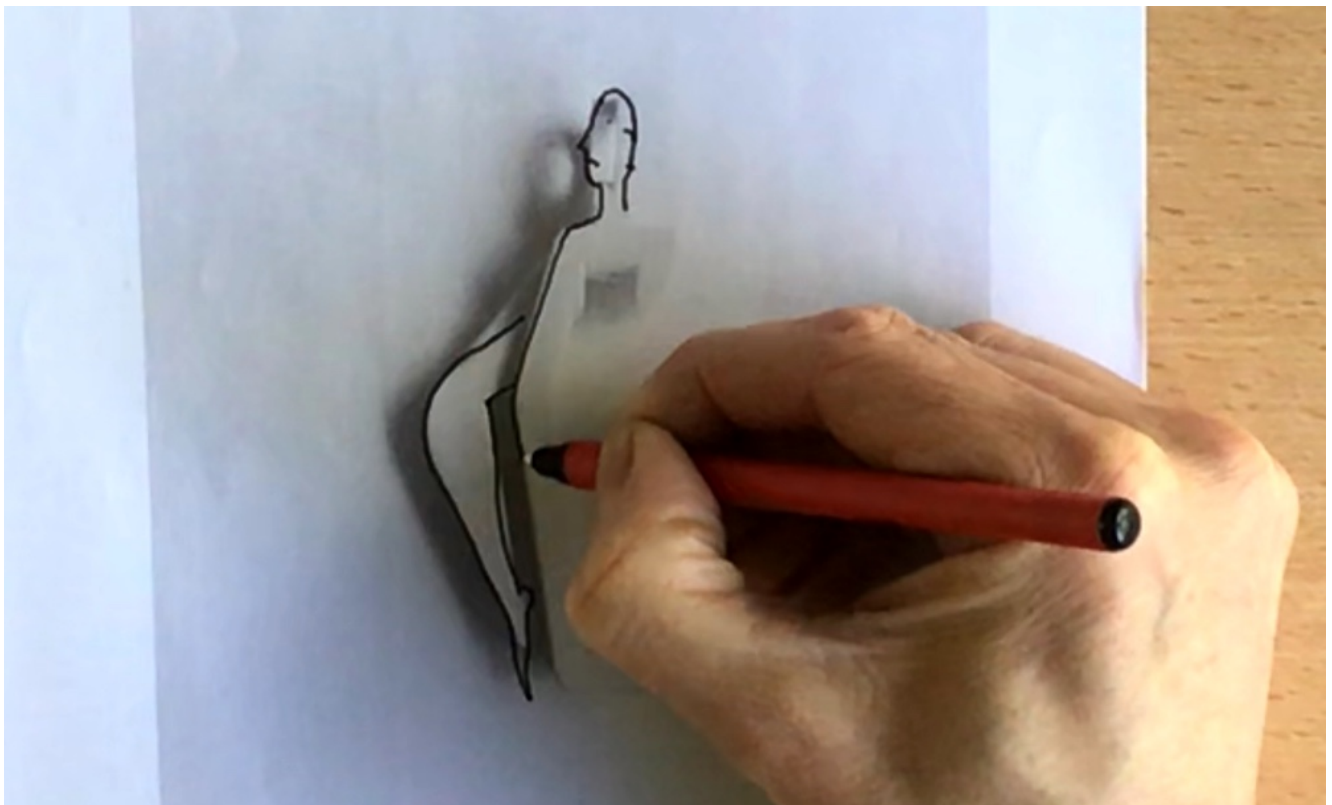


Adaptation Drawing

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

Simple Easter Sketchbook

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

Water and Rock: Teenagers explore building drawings with graphite and modroc

Teenagers look at pieces of chalk and flint and explore the physicality of rocks and geological processes with graphite and plaster.

Teachers Start the New Year with Sketchbooks

AccessArt introduces teachers from English Martyrs Catholic Primary School in Worthing, whistle stop introduction to drawing and sketchbooks as tools for recording and thinking.

Year 3 & 4 Making Club: Animal Parade – Week One

To use our Carnival Mask Template to create animal masks for an Animal Parade at the end of this half term.

Drawing Flames

Teenagers are led on several guided drawing exercises exploring mark making to the rhythm of a burning flame.

Life Drawing: Using Tone by Hester Berry

Life Drawing: Understanding Foreshortening by Hester Berry

Life Drawing: Drawing Hands and Feet with Hester Berry

Life Drawing: Drawing the Head by Hester Berry

Red to Green: Wax Resist and Scraffito

Red to Green: Steps to Observational Drawing

Foundations for students to be able to approach observational drawing without feeling inhibited or paralyzed and reinstate their confidence in their ability and right to draw.

Red to Green: Monoprinting

Monoprinting is an excellent way to access mark making and drawing but with a bit of 'distance' from the finished work. Results are always unexpected and the process itself very engaging, so any potential anxiety about what a finished drawing 'should' look like is taken away.

Life Drawing: Capturing Gesture by Hester Berry

Red to Green: Taking Rubbings and Making Compositions

process of recording by taken rubbings from natural and man made objects whilst incidentally making uninhibited gestures and marks with graphite

Red to Green: Patterns in Nature, Line and Wire

using drawing as a way into exploring designs and patterns in nature, followed by a making session using wire to extend ideas into 3D