

30 teaching ideas for art in science

1

Chalk talk. Take the class out to a large area of tarmac such as the quad or play ground. Using chalks students draw large diagrams 1-3m wide. Could be used for cells, circuit diagrams, changes of state.

2

Anatomical illustrations. Show images of a variety of old anatomical drawings. Discuss how they were obtained and why. Show suitable examples of plastination. Discuss the method of plastination and the ethical issues surrounding it.

3

Face off. In pairs; one student faces the board whilst their partner sits with their back to it with a pencil and paper. Show a simple image/diagram. Students describe what they see and the partners create a drawing from the description.

4

Optical illusions. Use as a differentiated homework task. Students collect images of optical illusions. They can group them; describe different types; describe/explain how they work; design their own example.

5

Vascular bundles. Put out a request for tubes from kitchen rolls, foil etc and toothpaste boxes. Use these to model xylem (kitchen roll) and phloem (holes punctured in end flaps of toothpaste box).

6

Laminated illustrations. Collect examples of how art has been used to illustrate science e.g. guides for plant/animal identification, botanical illustration, anatomical drawings; engineering drawings, 18th and 19th century cartoons, artists impressions of planets. Laminate and use as talking points.

7

Hooke's *Micrographia*. Show images from *Micrographia*. Discuss why the work was so ground-breaking. Students imagine themselves as scientists in 1665, seeing the book for the first time and writing letters to one another.

8

Under pressure! Using graph paper, students draw around their palm, fist (by pressing knuckles onto paper) and thumb. Estimate the area of each and record. Press palm, fist and thumb in turn onto 'bathroom' scales. Record the force in Newtons. Calculate the pressure exerted. Which gives the greatest?

9

Computer animation. Show how computer animation can bring cellular processes to life. YouTube has some brilliant examples showing DNA replication.

10

Using field guides. Ask students/colleagues to bring in bird identification guides. Show photographs of different birds e.g. oystercatcher, black-headed gull, jay, shoveller, barnacle goose, linnets, sand martin. In groups, students use guide to identify the bird.

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11

Botanical illustration. Paintings as opposed to photographs of plant specimens, are still commonly used even today, because all the important identification points can be included in one painting. Website about the Shirley Sherwood Gallery at Kew gardens has useful background information.

12

Flip-book animation. Students design their own animation of a scientific process or idea.

13

How to produce biological drawings. Make your drawing large. Use a sharp pencil and plain paper. Draw clear, single lines. Stipple darker areas. Use straight labelling lines which do not overlap. Draw scale bar. For objects seen with microscope, give magnification. Include a concise title.

14

Make a Chladni plate. Attach a firm but flexible metal plate to a mechanical vibrator and stand in a tray. Connect the vibrator to a frequency generator. Tip sand onto the plate. Look for patterns forming in the sand at different frequencies. For further information: <http://blogs.scientificamerican.com/but-seriously/chladni-figures-amazing-resonance-experiment/>

15

Oil paints and the old masters. Show images of prehistoric cave paintings. What materials were used to create them? Show examples of oil paints with the name of each pigment visible. Can students list elements which are used to make some of the paints? BBC 'Fake or Fortune' 2015 shows how technology is used to date paintings and identify forgeries.

16

Dinosaurs through time. Show how images of dinosaurs have changed through time as scientists have made more discoveries i.e. 'cold-blooded', slow, standing and feeding in water – agile, fast and feathered. Could these changes be used as an analogy for evolution?

17

Light and pigment. Discuss primary colours in light and art. What are the differences and why are they different? For further information: www.thenakedscientists.com/HTML/questions/question/3361/

18

The art of Leonardo Da Vinci. Ask students to decide what the great man was interested in by viewing images of his drawings. Introduce the word 'polymath'.

19

Make your own play dough. There are several recipes on the internet. Use finished product to model enzyme/substrate; structure of atoms; solar system.

20

Draw on the floor. Use lining paper. Students draw around themselves. They draw in various organ systems e.g. digestive, respiratory, nervous or the position and relative size of glands and organs involved in endocrine system.

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21

Make your own paint. Students investigate the best type of binder and/or pigments. Try PVA glue, flour and water, egg yolk as binders. Coffee, tea and spices for pigments. Decide what to test e.g. colourfastness, intensity etc.

22

Artist in residence. Scientific institutions e.g. CERN often have an artist in residence. Choose a student to be the artist in residence for a lesson or short topic. They record practical activities, results, science learnt in an artistic medium – drawing, photos, video, sound etc.

23

Grand designs. Students make a simple model house or provide an old doll's house. Students add and annotate energy saving items such as carpets, double glazing, roof insulation, solar panels etc. Could also be used for water saving ideas, electrical circuits etc.

24

Using symbols. Students design symbols for the lab e.g. symbols for safety, equipment, forces etc. Use drawings/symbols in physics equations to replace parts of the equations e.g. speed, force, distance, mass etc.

25

Sculptures. Show images of sculptures made of different materials such as wood, metal, stone, leaves, snow etc. (used by some artists e.g. Andy Goldsworthy). Discuss the qualities/problems of each material and why they have been chosen. Link to processes such as erosion, corrosion, biodegradation etc.

26

Portrait detective. Choose a range of portraits of scientists e.g. Jenner, Dorothy Hodgkin that give clues to their field. Students deduce when they were working and in what discipline.

27

2D to 3D. Give students a range of objects e.g. molecule models. Draw them looking from one side, in 2D - like apparatus diagrams. Swap diagrams with a partner who redraws it with perspective, compare with the original object.

28

Picture postcard. Stick a postcard in the middle of a sheet of paper. Students annotate with notes about the science happening in the picture.

29

DNA. Explore how DNA has been depicted over time from chromosome pictures, x-ray crystallography, Watson and Crick's model to DNA fingerprints etc. Extend to look at other objects e.g. cells, atoms etc.

30

Pictionary. Give teams a list of keywords to draw for their team to guess.