

ANATOMY ACTS

Anatomy and Dissection

Rationale:

Almost all that we've learned of human anatomy has come from post-mortem dissection of bodies. Anatomists, surgeons and artists made careful dissections, drew what they saw initially and then prepared diagrams which edited out concealing and confusing tissues and elucidated organ and skeletal form. However, the diagrams we use in school textbooks and the diagrams we use to assess understanding bear little resemblance to real organs. Diagrammatic form has become so abstracted from real form that many students have difficulty relating diagram to organ. In part this may be due to the loss of so much comparative anatomy from classrooms, pupils may never experience dissection of a heart, lungs or joint. However, it may be also due to an emphasis on assessing knowledge of diagrammatic function in itself rather than using diagrams to help build understanding of organ structure and function.

The Anatomy Acts exhibition can be used to teach how understanding of organ form and function was reached through careful dissection, observation and drawing. After an initial visit to the exhibition or a medical museum, pupils can be given the opportunity to prepare their own dissection (chicken wing, chicken foot or sheep's heart would be ideal). An initial non-diagrammatic drawing of the dissected body parts could be made before encouraging pupils to edit out the irrelevant detail and thereafter make a good diagram showing the essential form. This could then be compared with published diagrams or established teaching resources.

Learning Outcomes

- Higher Human Biology, Unit Two The Continuation of Life, sub-topic (c) Transport mechanisms
- Standard Grade Biology The Body in Action, sub-topic (a) movement, sub-topic (b) The need for energy.

Objectives

- To explore the process of anatomical research, and to engage in this process in the classroom.

Aims

- To dissect a heart, lungs, chicken wing or other appropriate tissue, prepare a line drawing and from this prepare a labelled line diagram.

Resources

- Dissection equipment (scalpels, boards, scissors, forceps), good drawing materials
- Data projector/flexicam set-up to show dissection
- Appropriate body tissues

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Outputs

- A line drawing made on good quality paper
- A labelled diagram drawn from the original line drawing

Procedure

- The initial visit to the exhibition or medical museum should be prefaced with explanation of how anatomical discovery and research was carried out through the ages
- Pupils should be encouraged to explore the exhibition themselves
- The follow up lab practical sessions must be carefully planned as pupils will need substantial guidance in dissecting, drawing and preparing diagrams. Of particular worth is a decent flexicam/data projector set up so pupils can follow a teacher guided dissection in real time.
- Photographs (not diagrams) of the tissue to be dissected should be shown using Powerpoint or laminated print outs (easily taken from the web or a decent photographic anatomical atlas). The salient features of anatomy can be labelled on the photos. This will help locate the key teaching points on the tissue.
- Pupils should be issued with the tissues and encouraged to dissect in tandem with the teacher.
- Pupils should be encouraged to keep their dissections tidy, with excess/irrelevant tissue trimmed off and discarded.
- Once the tissue has been fully dissected, pupils can discard their dissection tools, tidy up a little and begin their line drawing.
- It is important that pupils draw what they see, not half remembered textbook diagrams. The teacher can have a pre-prepared drawing of the tissue on OHP or Powerpoint. Using this the teacher can produce a line diagram of the tissue, labelling the key features. Pupils should be encouraged to produce their own line diagram from their own line drawing.
- Only at the end should diagrams be issued to allow pupils to formatively assess their work or their peers' work.

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