

# **Lesson 16 - Case study of Betty Hay (Downloadable Student Document)**

Science - Biology - Key Stage 3

Cells, Tissues and Organs

Ms Wickham



## **Explain the importance of Betty Hay's findings.**

Include:

- Cell regeneration e.g. liver
- Link to stem cells
- Extracellular matrix

Key words: regenerate, undifferentiated cells, specialised cells, stem cells, disease, collagen



## **Explain the importance of Betty Hay's findings. (Answers)**

1. Hay's discovered salamanders could regenerate an amputated limb, meaning it can grow cells to replace the missing ones.
2. Other animals have been found to do this such as starfish.
3. The regeneration of cells means the differentiated cells become undifferentiated stem cells again.
4. Stem cells can be found in embryos, adults and plants and are cells that have not become specialised.
5. Examples of specialised cells include nerve cells, ciliated epithelial cells and sperm cells.



## **Explain the importance of Betty Hay's findings. (Answers)**

6. The body can then instruct the cells on what type of cell to become.
7. This is similar to the liver, when it is injured, those cells can regenerate to replace the damaged ones, until the liver is back to its original form.
8. Hay's also found the cornea on bird eyes to contain extracellular matrix.
9. The extracellular matrix can tell other cells what to become
10. Collagen is an example of extracellular matrix which is important for providing structure

