



TEACHER'S NOTES **GROWING UP**

OVERVIEW

Aimed at **key stage 2** (7-9 years)

(Prep time 5 mins/Class time 30 mins)

Learners consider how bones grow as we grow, designing an experiment to investigate the issue and working in small groups to measure their own bodies. After watching a video story about two children who have a genetic condition which affects their height, the class discusses how other people's bones may grow.

CURRICULUM LINKS

- Scientific and technological understanding: explore and investigate in order to collect data, analyse it and identify patterns
- Understanding physical development, health and wellbeing: recognise and respect similarities and differences between people
- Mathematical understanding: compare and order objects and events

LEARNING OBJECTIVES

- To take and record accurate measurements of physical attributes
- To work effectively in small teams
- To collect and interpret results to answer a specific question
- To consider possible alternative outcomes

you will NEED

- **Whose skeleton** sheet (provided), one for each learner or presented on a whiteboard
- **Growing up** worksheet (provided), one for each group of four or five learners
- Tape measures, one for each group of four or five learners
- Internet access

PREPARATION

- Print off enough copies of the **Growing up** worksheet for each group of learners

Activity

- Start the activity by showing the **Whose skeleton** images on the whiteboard, or handing a copy to each learner. Ask the class what a skeleton is, which skeleton they think belongs to which person, and why.
- Summarise that we all have skeletons inside our bodies. The bones in our skeletons help to keep our insides safe by protecting organs like the heart, lungs and brain. And they provide support, so we stand up instead of wobbling like jelly. If the class correctly identified the larger skeleton as belonging to the taller person, ask them if they think that all taller people have bigger bones.
- Explain that you can do an experiment to test this idea. Split the class into groups of four or five learners and give each group a **Growing up** worksheet and a tape measure. Ask learners to collect information about each of the measurements for each person in the group, and then answer the questions. Based on the data they collected, do they think there is a link between the length of someone's bones and their height?

Activity

continued

- Explain that you'd like the class to watch a video about two children whose bones grow a little differently. Watch Carys and George's video story at:

<http://www.genesareus.org/filmlibrary/carysandgeorge>

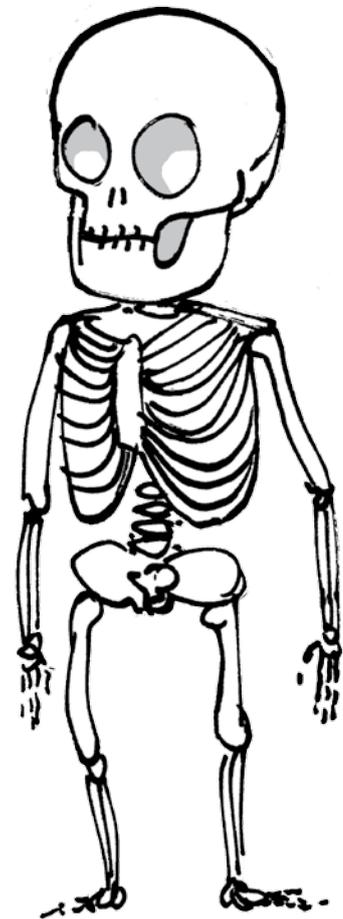
- As a class, discuss what type of results you might get if you took the same measurements of Carys and George. Because their arms and legs do not grow as much as their bodies, you would get shorter measurements for their height and lower arm length. But their head measurement might be similar.

EXTENSION

- Plot data for the whole class. Each group shares their measurements with the rest of the class before everyone plots scatter graphs to show the relationship (if any) between height and each of the different factors.

Each graph shows the heights of learners along the x axis, and the other selected measurement on the y axis. If there is a link between the length of the measured bones and height, the graph should approximate to a diagonal line (rather than a random distribution of points).

- Why not try our **CSI: Bones** activity which looks at the relationship between foot length and height?



FURTHER information

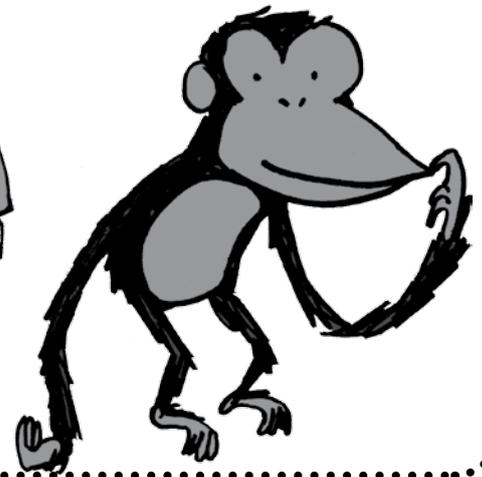
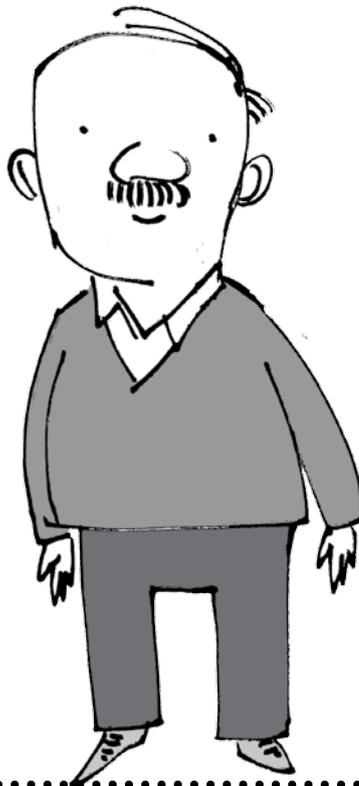
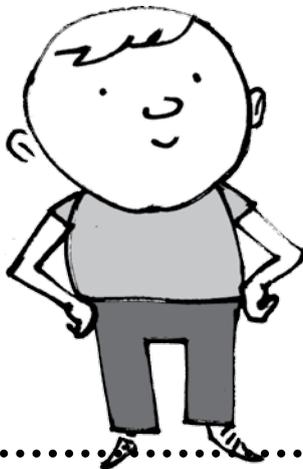
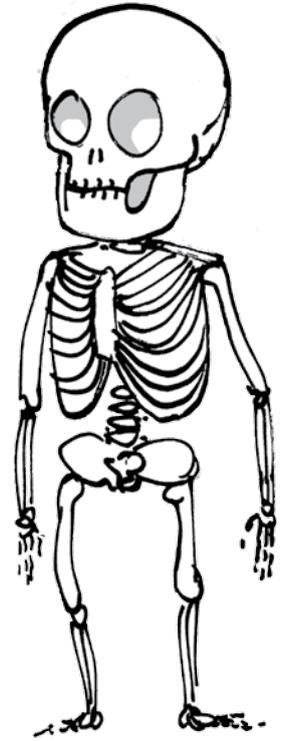
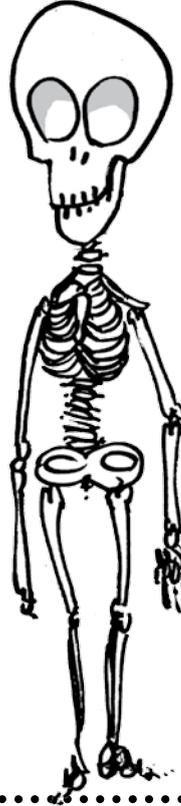
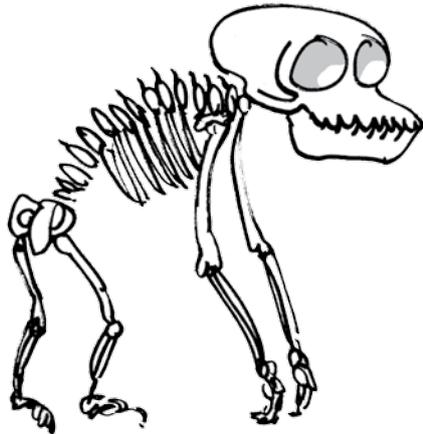
This online create-a-graph resource could be used on an interactive whiteboard: <http://nces.ed.gov/nceskids/graphing/>

FOR MORE RESOURCES LIKE THESE AND TO SIGN UP FOR JEANS FOR GENES DAY, VISIT US AT WWW.JEANSFORGENES.ORG

CREATED IN COLLABORATION WITH **nowgen** 
A Centre for Genetics in Healthcare

WHOSE SKELETON?

Whose skeleton is whose?



FOR MORE RESOURCES, GO TO WWW.JEANSFORGENES.ORG

CREATED IN COLLABORATION WITH

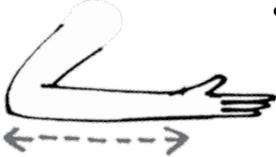
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GROWING UP

Use the tape measure to find the height, distance around the skull, length of a foot and length of a lower arm (elbow to wrist) for each person in your group.

Name	 Height (cm)	 Distance around skull (cm)	 Length of foot (cm)	 Length of lower arm (elbow to wrist) (cm)

Who is the tallest in the group?

Who has the largest head?

Who has the longest foot?

Who has the longest lower arm?

From your results, do you think taller people have longer bones or not?