

Tutorial 1: measurement

Activity one

Self evaluation – entry test

■ Fill in the gaps in the sentences according to the definitions. The first two letters are given.

Example:

How **de** is the Pacific ocean? (distance from the surface to the bottom)

→ How **deep** is the Pacific ocean?

1. In 1841, Sir George Everest, a colonial official, recorded the location and the **he** of the most famous mountain in the world. (*altitude*)
 2. GIS (geographic information systems) are designed to process massive **am** of data. (*quantities*)
 3. The hearing **ra** of bats is enormous; it goes from 50 to 100,000 cycles. (*from the lowest to the highest limit, extent*)
 4. It is said that Galileo dropped objects from the leaning tower of Pisa to prove that the speed of fall is not proportional to **we** (*a force measured in kg*)
 5. Colonial power depended on navigation. In 1714, the British Parliament offered a prize of £20,000 to the first man to develop an **ac** marine chronometer. (*exact, precise*)
 6. A six-year-old, male alligator has a **le** of approximately 190 centimetres. (*longitudinal dimension*)
 7. Xavier LePichon, a French seismologist, was able to **wo** the basic geometry of plate tectonics from seismic evidence. (*calculate – 2 words*)
 8. As a meteorite enters the atmosphere, it **sl** (*decelerates – 2 words*)
 9. The **av** brain temperature of animals hibernating in the Arctic may drop to 6°C. (*statistically normal, mean*)
 10. The notion of square **ro** was invented in the 9th century by Arabian mathematicians. (*a factor of a number that when multiplied by itself gives the number*)
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Activity two:**THE WORD WEB – SUFFIXES**

- As we have seen in the Key points, suffixes can be used to transform adjectives into nouns and verbs. Complete the columns using the suffixes: *-ment* • *-th* • *-ness* • *-en* • \emptyset .

Adjectives	Nouns	Verbs
1. The road is not wide enough.	The main problem is the of the road.	Why don't they the road?
2. We need better measuring techniques.	All the were wrong.	We require techniques to more accurately.
3. A lack of vitamins can have wide-ranging effects.	The of potential diseases is considerable.	Lack of vitamins causes illnesses which from goitre to anaemia.
Adjectives	Nouns	Verbs
4. Cotton is a textile with short fibres.	It is cheap because of the of the fibres.	Genetically modified cotton can the growing season.
5. There is a weak attractive force between the molecules.	Because of the of attraction, the molecules can be separated.	Raising the temperature the molecular attraction.
6. The deluxe model is well-equipped .	The car has got first class	It has been with the latest gadgets.
7. When the eye becomes red , it is a symptom of bacterial infection. of the eye is a symptom of conjunctivitis.	The eye as the bacteria spread.
8. How is a horse?	The of a horse can attain roughly 1,000 kg.	A horse can weigh almost 1,000 kg.

Activity Three:

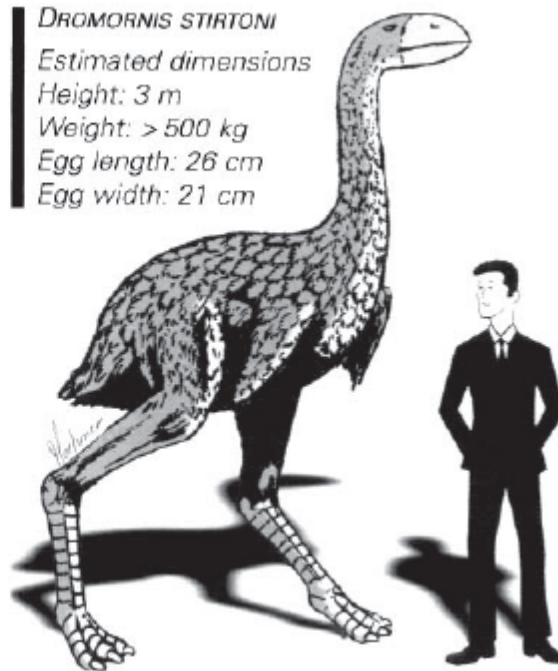
DEAD DUCKS FROM DOWN UNDER²

Words mentioned in the Key points are written in **bold**.

■ Replace the words which are in **bold** and underlined by synonyms, antonyms or by an explanation.

Dromornis stirtoni, an extinct flightless bird, lived in Australia **roughly** 8 million years ago. It was probably the heaviest bird in the history of evolution, with a **weight** of **slightly more** than 500 kg although its **wing span** was very small. A considerable

amount of information has been obtained from recent fossil finds in Queensland, enabling scientists to **work out** basic **measurements**. From a morphological point of view, *Dromornis stirtoni* appears to be similar to an emu or an ostrich, however, scientists now believe that it is related to the duck species, as the massive dimensions of the head show. The bird **attained** a **height** of over 3 meters. The large head and formidable beak³ suggest that the bird was carnivorous. The **cross-section** of fossils of the leg bones reveals that the bird had **short, thick** legs indicating that it could not have run as fast as the ostrich. The **width** of the body was about the same as the **length** of the neck and legs.



- Why couldn't dromornis stirtoni fly?
- Why do we know so much about the bird?
- How do we know it is not the same species as an ostrich?
- What makes it possible for an ostrich to run so fast?

Activity Four

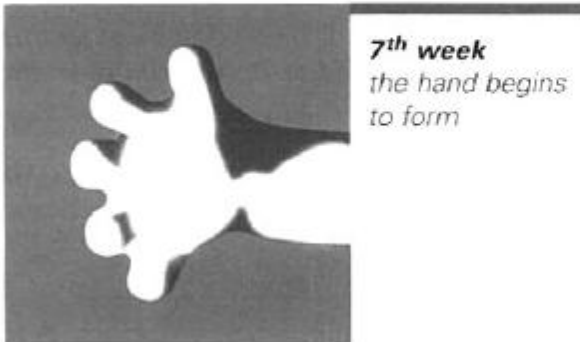
Asking questions: are you sure you **never** make a mistake?

■ Write a question about the words in **bold**.

1. It became extinct about **8 million years ago**.
2. An emu weighs slightly more than **50 kg**.
3. Specialists examined **the bones**.
4. **An ostrich** runs very fast.

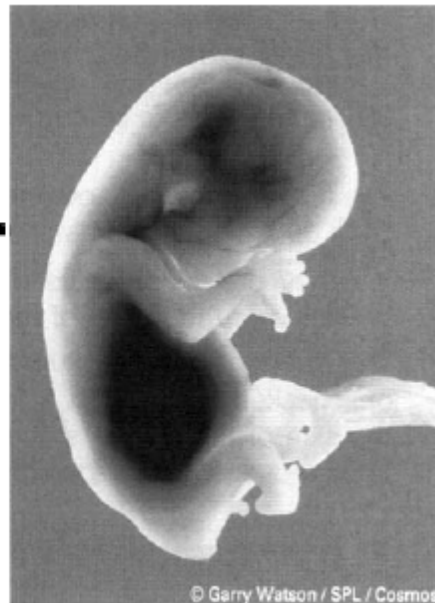
Activity Five :

Fetal development



The fetus – 11th week
Mean measurements
Length: ≈ 6.9 cm
Weight: ≈ 28-35 gm
Head circumference: ≈ 8.1 cm
Volume amniotic fluid: ≈ 60 ml

The fetus is now becoming more human. The head is still disproportionately big, but the vital organs – liver, intestines and brain – function and the genitalia are visible. The heartbeat can be heard with a stethoscope and the legs are beginning to move. The fetus floats in the amniotic fluid and nutrients are supplied via the arteries in the umbilical cord. Tiny blood vessels can be seen through the translucent skin.



A. Describe the pictures using the following words.

1. average (+ almost)
.....
2. to range (+ weight)
.....
3. circumference (+ slightly over)
.....
4. volume (+ roughly)
.....
5. odd (+ each hand)
.....
6. width (+ what?)
.....
7. narrow (+ arteries)
.....
8. monitor (+ heartbeat)
.....
9. thin (+ skin)
.....

B. Here are some answers to FAQs (Frequently Asked Questions) concerning the fetus. Write the corresponding questions.

- | | | |
|--|---|---------------------|
| 1. It usually begins to beat in week 5-7. | → | At what stage |
| 2. The fetus monitors its own temperature from 30 weeks onwards. | → | When |
| 3. No they don't. The fetus of the male weighs more than that of the female. | → | Do |
| 4. This happens at about 30 weeks (it can be checked by moving a light across the skin of the mother's abdomen. The fetus moves its head towards the light). | → | In which week |

C. Make sentences using the following words.

1. **harden** / bones / begin / 13th week
2. **lengthen** / femur / 4th week / considerably
3. **thicken** / the wall / uterus / fertilisation

Activity Six:

Self evaluation – exit test

■ Complete the sentences by filling in the blanks with an appropriate word.

1. Between 2005 and 2025, the average world death rate is expected to decline only **sl** (*a little, by a small amount*)
2. The biosphere refers to the **th** layer surrounding the Earth where living organisms are found. (*small transversal dimension, ≠ thick*)
3. The original estimation of the cost of building the Three Gorges Dam in China was extremely **in** (*imprecise*)
4. A chain reaction is a series of reactions in which the result of each **st** causes the next. (*step, part of the process*)
5. If you add two odd numbers together, you get an **ev** number. (*the opposite of odd*)
6. The Arctic Ocean is joined to the Pacific Ocean by the Bering Strait, a narrow and **sh** channel with a depth of no more than 55 m. (*≠ deep*)
7. Satellite photographs provide valuable information about the **ex** of desertification. (*degree*)
8. All over the world, research centres are closely **mo** pollution levels. (*following the evolution*)
9. In Greenland and Iceland there are a variety of small-**sc** manufacturing industries. (*size, dimension*)
10. Bacteria can acquire resistance to antibiotics by mutations which may **st** their resistance. (*make stronger*)