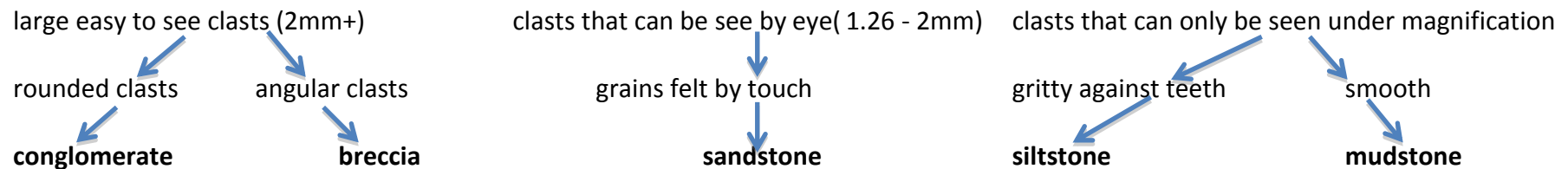


Recognising Sedimentary Rocks – Teacher Notes

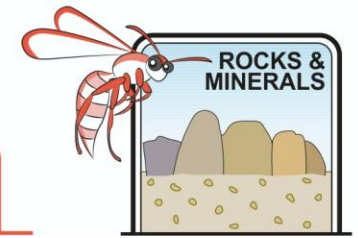
Sedimentary rocks are made of clasts and are usually softer than igneous or metamorphic rocks. They are not crystalline. They show signs of bedding and sometimes contain fossils.

Clastic sediments are classified by their grain size. They show signs of bedding.



Biogenic sediments have no clasts and **often** have fossils. They can be massive with few signs of bedding

Name	Colour	Source	Texture	Test with acid	Comment
Coal	Black	Swamp vegetation	Soft, can scrape with metal blade	No result	Will ignite
Limestone	Grey to buff	Coral reefs and shells	Variable	Effervesce	Can be massive
Chalk	White	Marine algal shells	Very soft. You can scrape with fingernail. Will leave a white stripe on wood.	Effervesce	Tiny marine algal shells
Spongelite	Many colours, mostly white	Microscopic silica skeletons of sponges	Harsh to touch	No result	Microscopic silica skeletons of sponges



Recognising Sedimentary Rocks – Teacher Notes

Chemical sediments are formed when inorganic material builds up into a mass. Most of the rocks above also have chemical components.

Evaporites are formed when large masses of water dry up leaving salt (halite), gypsum (hydrated calcium sulphate) and anhydrite (calcium sulphate). When evaporites are covered by more sediment and compacted they behave like slabs of soap and slide upwards to cause domes in the overlying sediments.

Chemical Limestone is deposited from dissolved lime in groundwater or seawater. Tamala limestone is the name given to our white coastal limestone that was used for building much of old Fremantle. The sea deposited sand dunes rich in shells. Lime from the sea shells was dissolved into groundwater and later redeposited elsewhere to leave sandy (lime poor) sections and make hard lime rich areas. This means that Tamala limestone is not laid down in time specific beds but is the generic name for chemically deposited limestone zones within sediments.

Where students do not have sedimentary rocks in their collection, they may wish to make their own using the “Replica rocks” activity

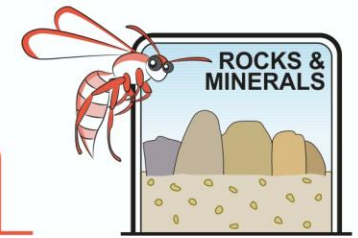
Recognising sedimentary rocks activity

The following pictures are of sedimentary rocks from Western Australia. Name each rock type and explain which characteristics led you to this conclusion



Conglomerate from the Canning basin is a clastic sediment. Note the poorly sorted, well rounded boulders and pebbles (clasts) in a finer grained matrix. Conglomerates often indicate unconformities where there has been rapid uplift and much younger sediments have been deposited on older sediments with a time gap between. The rounding is due to fast flowing streams from the uplifted mountains. Conglomerate used to be called “pudding stone” because it resembled an old-fashioned fruit pudding.

HINT *The hammer gives you an idea of scale*



Recognising Sedimentary Rocks – Teacher Notes



Chalk is a biogenic sediment formed from the skeletons of tiny marine coccoliths. Their dead bodies “rained” down onto the floor of a warm sea. They have been compacted and cemented and turned into rock.

HINT *This rock leaves a white streak on wood*



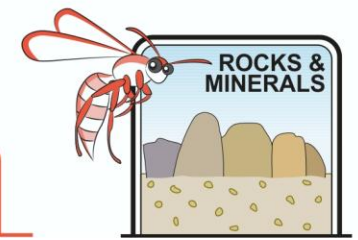
Breccia is a clastic sediment. The angular clasts demonstrate that it was deposited close to where the original rock was weathered. Breccias are the result of rapid tectonic movement due to folding or faulting.

HINT *The mountains were rising very very fast*



Fossiliferous limestone is a biogenic sediment. The fossils tell us how old the rock is (about 1.2 million years). The unbroken nature of the shells tells us that they weren’t deposited at the “swash zone” at the edge of the sea where they would have been rapidly broken down into smaller fragments. They must have been deposited above high tide line during a storm.

HINT *Beach*



Recognising Sedimentary Rocks – Teacher Notes



Siltstone is a fine grained clastic sediment which is often deposited at the outfall of river deltas where alternating sands and mud is being deposited. Although it feels smooth to the hand the fine sandy particles will scrape your teeth. This specimen is from the Irwin River valley.

HINT *Smooth but will scrape your teeth*



Sandstone is a medium grained clastic sediment. When the clasts are viewed through a hand lens they are seen to be well rounded due to their weathering by wind and water. This specimen is from the beach near Broome

HINT *Fees rough and gritty*



Mudstone is a very fine grained clastic sediment. It feels smooth and is soft.

Hint *It can be scraped by a finger nail.*