SunSmart shade audit

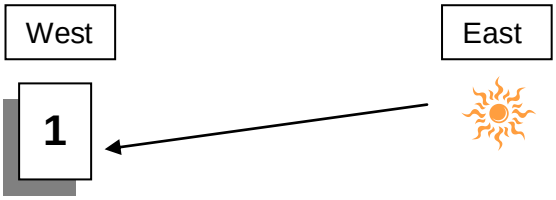
Recommended AusVELS Level: 3 - 6
Recommended Strands:

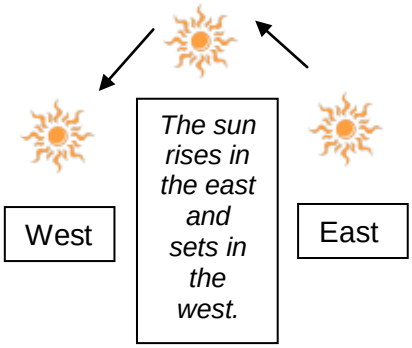
- Health & Physical Education
- Personal Learning
- Interpersonal development
- Mathematics
- Science
- Communication
- Design Creativity and Technology
- Information and Communications technology
- Thinking Processes

A shade audit is when you look closely at an area to work out what **shade** is already there, how **good** that shade is and what **improvements** could be made. Imagine you have been asked by the Principal to do a 'shade audit' to see if there is enough shade at your school in areas where people like to play. You need to prepare a report about the quality of shade that already exists, any improvements that could be made and any areas that need new shade.

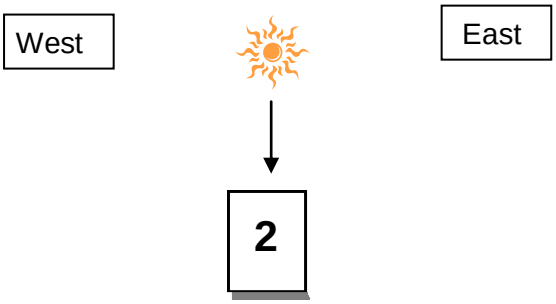
About shade

There are three basic daily shade patterns.

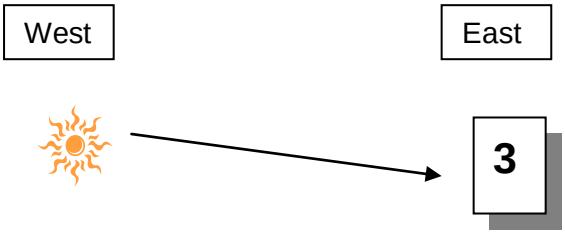




1. Morning – when the sun is in the east.
The shadow will fall in a westerly direction.

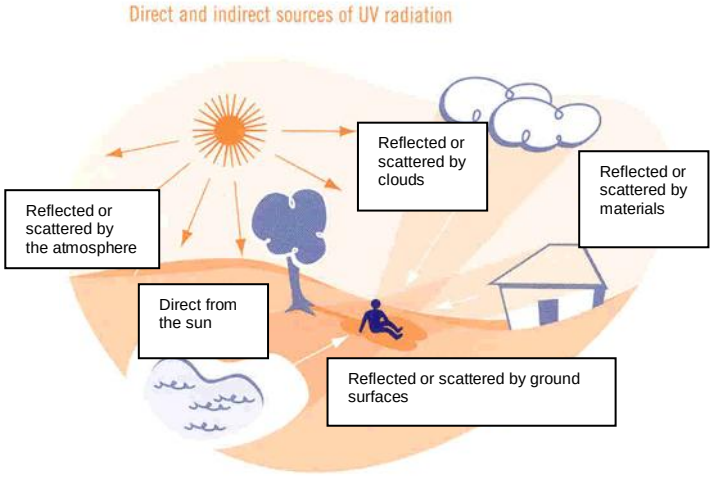


2. Midday – when the sun is overhead.
The shadow will fall close to the object casting a short shadow. This is when the sun's ultraviolet radiation (UV) is most intense.



3. Afternoon – when the sun is in the west.
The shadow will fall in an easterly direction.

DIRECT AND INDIRECT UV RADIATION



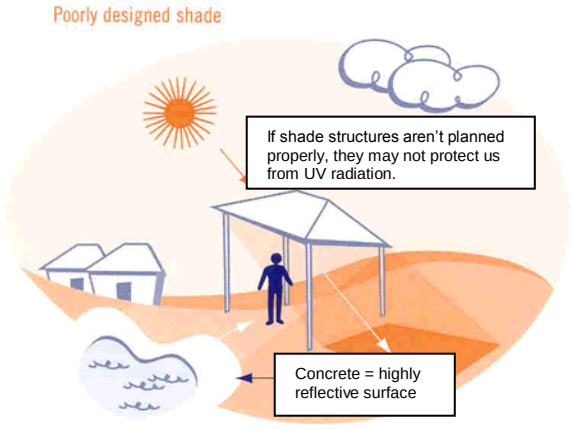
The sun's UV can reach you in three ways.

1. Directly from the sun
2. Indirectly by being scattered by particles in the air
3. Indirectly by being reflected off smooth, shiny and light coloured surfaces such as sand, concrete, metal and glass.

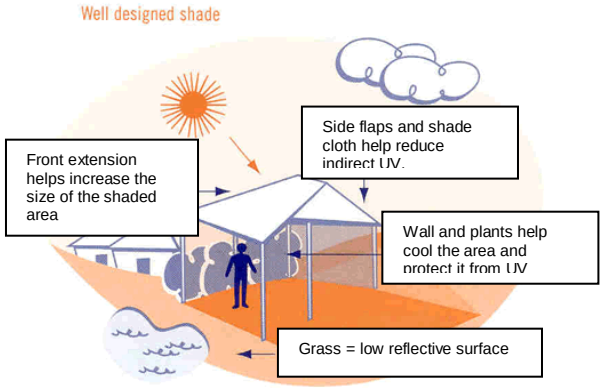
SURFACE	HOW MUCH UV IT REFLECTS (%)
Snow, old-new	50 – 88%
Sea surf, white foam	25 – 30%
House paint - white	22%
Beach sand, dry, light	15 – 18.0%
Beach sand, wet	7.1%
Concrete footpath	8.2 – 12.0%
Open ocean	8.0%
Boat deck, wood - fibreglass	6.6 – 9.1%
Asphalt / bitumen, new (black) / old (grey)	4.1 – 8.9%
Soil, clay	4.0 – 6.0%
Open water	3.3%
Lawn grass, summer - winter	2.0 – 5.0%
Grasslands	0.8 – 1.6%

This table shows the percentage of UV that is reflected off different surfaces. The higher number means more UV is reflected off that surface. Outdoor areas should try to use materials that reflect less UV.

POORLY DESIGNED SHADE



WELL DESIGNED SHADE



The best shade;

- ***Covers a large area*** - Shade needs to be large to provide plenty of space for you to play and learn under it. It is best if you don't have to sit right at the edges of the shade where you can still get some of the sun's reflected and scattered UV.
- ***Is protected from UV reflective surfaces*** – a good shade structure might also have some shaded walls or side panels to help block UV.
- ***Uses material with a high UPF rating*** – If an umbrella or shade cloth still lets alot of UV through, it isn't very good shade. The UPF (**U**ltraviolet **P**rotection **F**actor) label should be as close to UPF 50 as possible.
- ***Is in the right area-*** Imagine having shade poles and shade cloths in the middle of a basketball court or a great shaded area where the ground is always damp and there is no where to sit? Shade needs to be safe and not interfere with your activities.
- ***Is attractive and safe and people want to use it*** – The shade should suit the environment and be in an area where you want to play or sit or learn e.g. shade cloth over the sandpit, large trees around the adventure playground, shade sails over picnic tables.

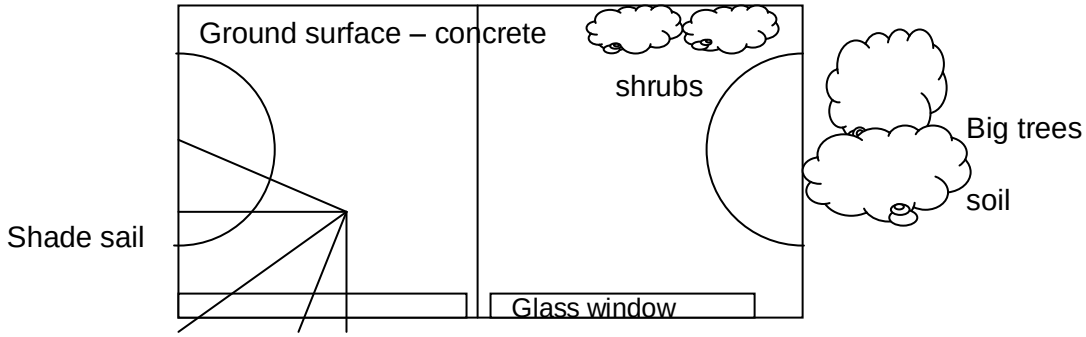
You will need

1. Paper for a site plan (drawn by your team) – see the example on page 4
2. Shade audit table (create your own table or use the one on page 5)
3. Tape measure
4. Three different coloured pencils
5. Hat, sunscreen, sunglasses (if you have them)

Instructions:

1. Choose an area at your school to be investigated. Make sure it already has some shade and is a place children like to use at lunchtime (when the sun's UV is most intense).
2. Draw a large site plan of the area from a bird's eye view (imagine you are looking down at it from the sky). Include outlines of any buildings, garden beds, fenced areas, trees, shade sails, veranda

   Example: Netball court



3. Mark the type of surfaces on the site plan e.g. grass, concrete, asphalt, brick, soil, glass etc.

You will need your site plan and your shade audit table

4. Observe the area at morning recess.
   - Choose one of the coloured pencil for the morning information.
   - Use this colour to mark your site plan to show where the shade is at this time.
   - Measure the shaded area to see how big it is.
   - Write down the measurement on the shade audit table.

5. Observe the area at lunchtime
   - Choose another coloured pencil for the lunchtime information.
   - Use this colour to mark your site plan to show where the shade is at lunchtime.
   - Measure the shaded area to see how big it is.
   - Write down the measurement on the shade audit table.

6. Observe the area in the afternoon
   - Choose another coloured pencil for the afternoon information.
   - Use this colour to mark your site plan to show where the shade is in the afternoon.
   - Measure the shaded area to see how big it is.
   - Write down the measurement on the shade audit table.

7. Compare your findings from the different times in the day. (Answer the questions on the Shade Audit table page)
8. Can you suggest any ways to improve the shade in this area?
9. Prepare a report with the results of your audit and your recommendations to send to the Principal.
10. Present your findings to your class.

Shade audit table

Name: _____

Date: _____

Area to be observed:_____

UV reflective surfaces near area: e.g: glass windows, concrete, asphalt, brick walls, sand:

_____

_____

Time	**Colour used**	**Shade Protection level** ☐ **Tick the level of shade protection**	**Shade measurement** (cm or metres)
Morning		☐ No shade protection ☐ A little shade protection ☐ Alot of shade protection	
Lunchtime		☐ No shade protection ☐ A little shade protection ☐ Alot of shade protection	
Afternoon		☐ No shade protection ☐ A little shade protection ☐ Alot of shade protection	

Questions

Look at the information you gathered.

1. When did your chosen area get most sun? _____
2. When did your chosen area get most shade? _____
3. Does your chosen area have enough shade to protect the people who use it? _____
4. Is the shade large enough to provide good quality protection from direct UV? _____
5. Is there anything near the area that would reflect the sun's UV? _____
6. Does the shade protect from indirect UV? _____

Recommendations: Write any recommendations you have which could help the area become more protected from the sun.