

Species Report Card

1 What organism are you exploring. Can you name it and draw it?

Cactus



2 What Function does this organism perform which you are interested in? (What does it do?)

Protect from heat.
Prevent liquid loss.

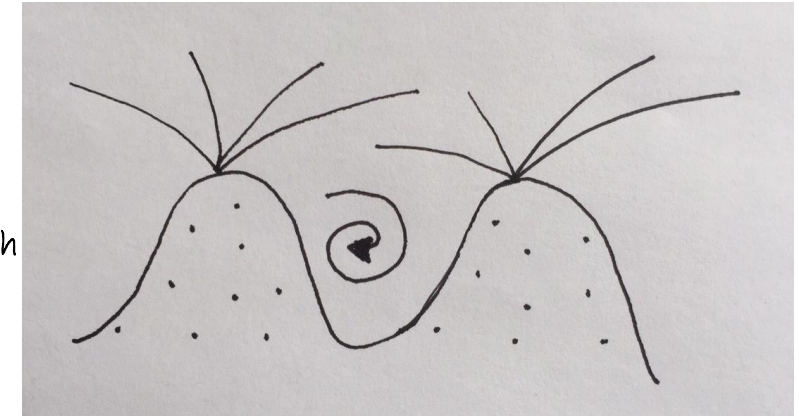
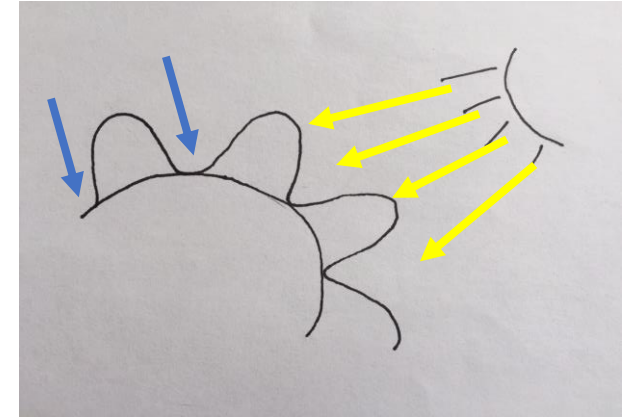
3 Describe the strategy this organism uses to deliver the Function you are interested in. (How does it do it?)

Use system of peaks and troughs around the cactus to create shade, increase surface area and create favourable micro-climates.

The ribs surrounding a cactus help create small areas of shade on the surface, helping to protect from heat (see right – the areas indicated with the blue arrows are kept cooler due to shading). In other words, the peaks provide shade for the troughs.

The ribs also create a greater surface area, thus offering more surface area for heat to dissipate from.

The pleated surface created by the ribs, with the help of needles, create a sheltered area between each pleat (in the valley) that in turn creates a micro-climate which is cool during the day and warm at night.



4 How could this be used to solve your challenge? (translate your strategy into a design principle)

Create areas of shade using structure to block sunlight and protect from heat.

Use 'rough' surfaces to disrupt airflow and encourage heat to be removed.