



Penguin Feathers and Wet Weather

Activity:

1. Print or find a penguin picture to color. Free ones can be printed at: https://www.momjunction.com/articles/penguin-coloring-pages-for-your-little-ones_0089527/#gref.
2. Color in the penguin feathers with crayons.
3. Fill a spray bottle with water and a few drops of food coloring.
4. Put the colored picture on a tray and spray the picture of the penguin while noticing what happens to the water droplets.

Questions to ask:

Do the droplets do something different where you have colored with your crayon? (*Water spreads out on the regular paper but forms a bead on the area that is colored*)

How would you describe what happens on the colored part? On the paper that is not colored? (*Water spreads out on the regular paper but beads up on the area that is colored*)

Why do you think it beads up like that? (*The water molecules are not very attracted to wax but they are attracted to other water molecules*)

Do you know where penguins live? (*Penguins live in very cold climates in the South Pole*)

Why do you think it would be helpful for a penguin to have a wax-like substance on its feathers? (*Penguins have a special gland in their bodies that produces an oil which makes the penguins' feathers waxy. The waxy feathers protect the penguin from extreme cold and icy waters*)

How could we find out more about penguins and their feathers?

Science behind the activity:

The overlapping, densely packed feathers of penguins are coated with preen oil to provide a sort of weatherproofing from the wet weather. Antarctic seas may be as cold as 2.0 C. tufts of down below the feathers trap air. This trapped layer of air in the feathers provides thermal insulation for the penguins. To retain heat, penguins tuck in their flippers close to their bodies to avoid heat loss and they shiver to generate additional heat.