

Species Variation



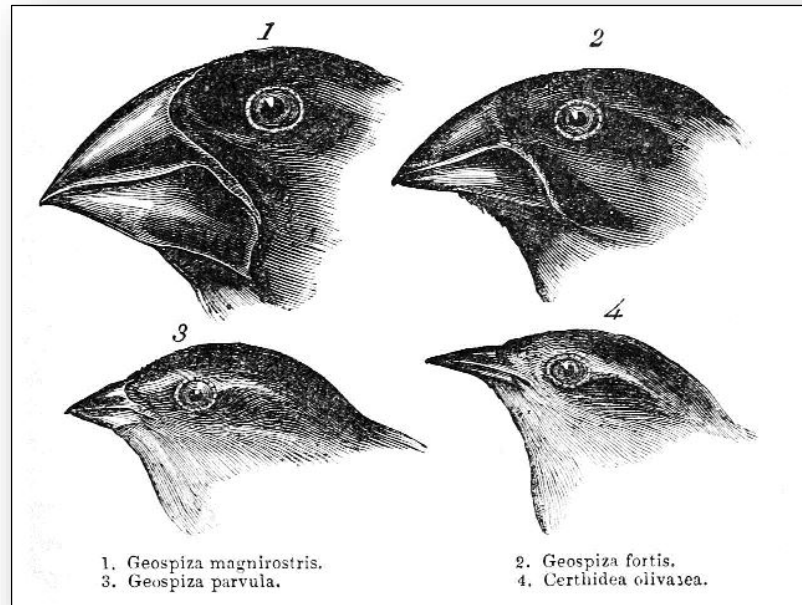
Lesson Objectives

- To define variation and adaptation.
- To analyse data on bacterial variation and how this relates to chilled foods.
- Explain the development of antibiotic resistance.

What is Variation and Adaptation?

These are copies of drawings made by Charles Darwin of finches on the Galapagos Islands.

Look at their beak shape, they show variation (differences).



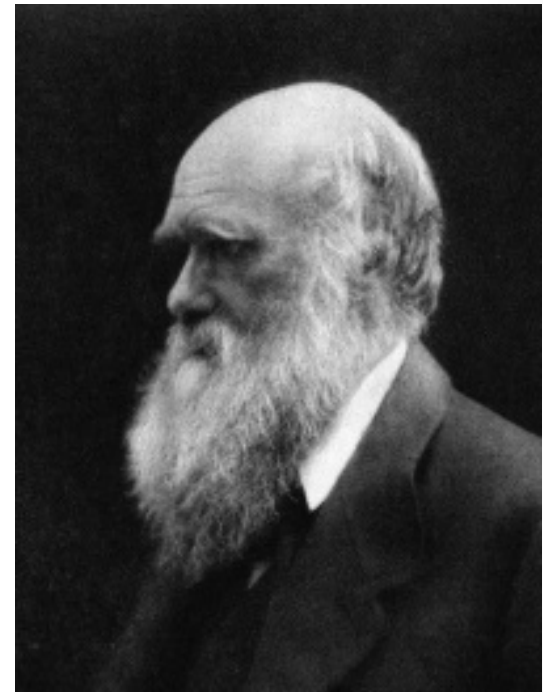
Which finch do you think would be best adapted to eating seeds and nuts covered in a tough shell?

What has this got to do with bacteria?

Darwin's finches helped him come up with his theory of natural selection.

The theory states that better adapted organisms tend to survive and produce more offspring.

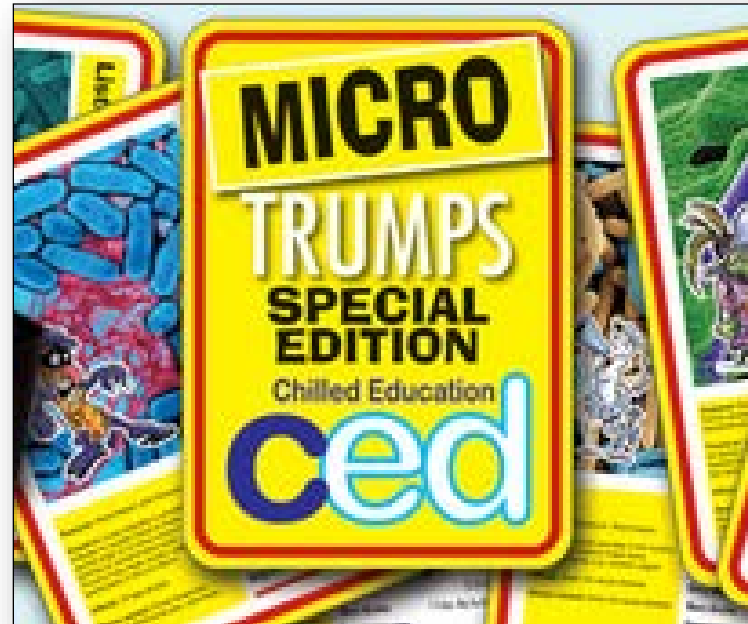
The same is true for bacteria.



Two types of E. coli

Select the cards on
“toxigenic E. coli”
and
“non-pathogenic
E. coli”

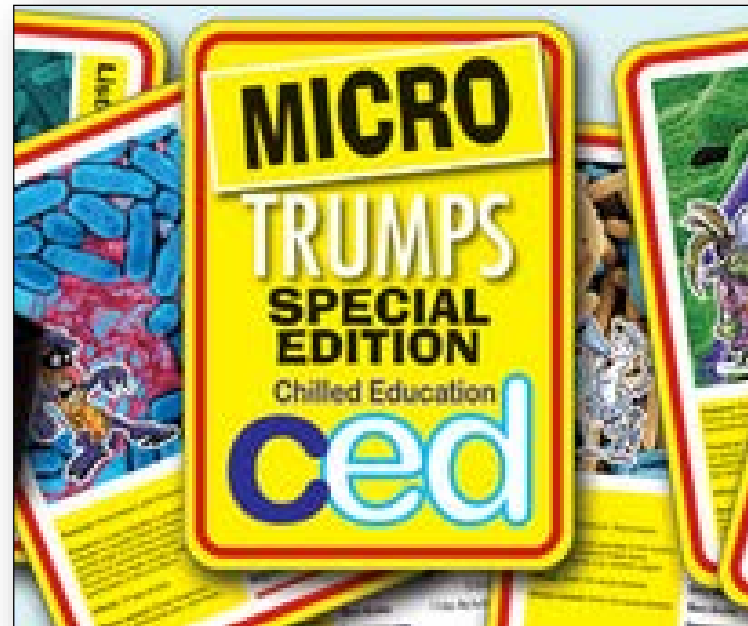
Which of the two do
you think is better
adapted to survive in
humans?



Clostridium botulinum

Using Micro Trumps find the two types of Clostridium botulinum.

By using the category 'minimum temperature for growth', explain which type is better adapted for foods that are kept chilled.



Antibiotic Resistance

- Watch the TED-Ed video from:
<http://ed.ted.com/lessons/how-antibiotics-become-resistant-over-time-kevin-wu>
- Use information from the video to answer the questions on the worksheet.

Plenary

Using what you have learned, respond to the tweet of this person below who hasn't quite understood antibiotic resistance.

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#antibioticresistance

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“OMG! I heard that food – even if it’s wrapped in plastic - has microbes all over it. We need to treat food with antibiotics to make it safe.

[#antibioticresistance](#)”