



Plastic resin pellets

Plastic resin pellets (PRPs), the tiny building blocks of plastic items such as drink bottles, often make their way into our waterways. Absorbing toxins that may be in the ocean and releasing them once ingested, these are known as endocrine disrupters and are hard to clean-up. They look just like fish eggs or small plankton.



Orientation:

Ask Ss if they know how plastic is made – elicit answers on the whiteboard. Introduce the concept of PRPs. The main points are that they are very small and absorb toxins. They melt when heated to make bigger plastic items: they go through a chemical change involving substances and reactions to make new substances. They are made from non-renewable resources. They are categorised as micro plastics. There are two broad classes of micro plastics: fragmenting post-production plastic items, and pre-production plastic resin pellets.

Video clip: generating interest

Play 'Capt. Charles Moore – Beat the Micro Bead' video clip (1st slide in the Lesson 2 Plastic Resin Pellet PowerPoint presentation). Have a discussion at the end of the video to check Ss' understanding and answer any questions.

The details: Lesson 2 PowerPoint presentation – pictures of plastic resin pellets

Discuss with Ss in more detail about how PRPs absorb toxins whilst in the ocean and what this means for marine life and humans whilst going through the Lesson 2 Plastic Resin Pellet PowerPoint presentation. Talk briefly about endocrine disrupters. Play the 'Plastic Seduction' video clip to show in a fun way how ridiculous it is to eat plastic. This is embedded in the Lesson 2 Plastic Resin Pellet PowerPoint presentation.

Investigating how plastic resin pellets can end up in our waterways:

Elicit some ideas from Ss about how PRPs could end up in rivers or oceans. Try to get Ss thinking about plastic factories and their industry practices, ships transporting PRPs and natural disasters.

YEAR LEVEL

Years 7 - 10

MATERIALS

PowerPoint presentation
7-10 Lesson 2.ppt

Equipment for Ss to view
PowerPoint presentation on

KEY WORDS

- Endocrine disrupter: (chemical compounds that interfere in differing ways and rates with the genetic functioning of organisms)
- Persistent Organic Pollutants (POPs)
- Toxins
- Nurdles
- React
- Substance
- Non-renewable



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There are two video clips in the Plastic Resin Pellet PowerPoint presentation that Ss will find interesting about how PRPs can end up in the ocean:

Plastic Disaster – Hong Kong: <http://vimeo.com/46594524>

Nurdles Lost at Plastic Factory: <http://nurdle.org/nurdles-lost-at-plastic-factory/>

Plastic resin pellet poster:

From the information learnt in class and researching the internet, Ss could make a poster showing the benefits of PRPs and the useful items that can be made out of them, plus some of the not-so-positive aspects of PRPs, and how plastic has influenced our lives.

There is a good digital poster site www.glogster.com which allows students to create layers and make the posters interactive.

Extension activities:

Research project: Ss can research if there are any plastic factories in their local area and show on a map if they are near any waterways. Ss can find out what their practices are in regards to dealing with the clean-up of any spilt PRPs. e.g. do they hose them into drains? Are there any local city council regulations? What are the ethical considerations?

Useful link: <http://marinewaters.fish.wa.gov.au/resources/counting-the-plastic-pellet-scurge/#.UVap7xx--po> An article and case study on PRPs in Western Australia.

