**Activity: Pack it in Pack it out – an investigation into waste**

**Learning intention:**

To explore a visual representation of the time it takes for various materials to break down and consider the implications of this when visiting the outdoors.

**Description:**

* + Make a timeline starting at 0 through to 1000 years. Make the intervals 100 year gaps. This could be done outside, it might be recorded on a large roll of paper, or even a piece of string pinned across a wall. This could be the first part of the activity by having the students work out how to make this, otherwise prepare it in advance.
  + Ask students to indicate where we would sit on the timeline in terms of how old we are (i.e. all within the first 100 years).
  + Ask students to think about how long most people live. Where is that on the timeline?
  + Make some marks on the timeline to show what the students thinking is and then ‘park’ this flow of thought in the activity to come back to later.
  + Collect a range of items that might be used on a typical two to three day tramp such as food wrappers, food scraps, plastic bags, empty gas canisters, a picture of human waste, toilet paper, lighter, paper maps, detergent, soap, shampoo, anything that has the potential to fall out of a pack.
  + Allocate some of the items to small groups of students and have them decide how long they think it will take for these things to decompose at a site you are planning to visit. When the students have decided how long they think it will take they place their items on the timeline.

**Discuss the following:**

* Have each group share why they have placed their items where they did.
* Do you agree with where things have been placed? Why or why not? If after discussion a group is happy to shift items they can do so.
* What do we think the consequences of what we see on the timeline might be? Some items might take 300 years to decompose – how many of these items do students think there might be in the school, in their town, in the world?
* What happens to things we no longer want? Where do they go? Whose responsibility is it to deal with these things that we no longer want?
* What do students think the possibilities are at this stage? For example can some items be re-used? Do some things not really take very long to break down at all?
  + Take a photo of the timeline at this stage.
  + Give each group of students a copy of the statistics table of an example of how long it takes for some items to break down and for them to use this information to re-consider the placement of any of the items on the timeline.

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| **Article** | **Time to break down** | **Article** | **Time to break down** |
| Apple core | 2 months (in water) | Orange or banana peel | Up to 2 years |
| Aluminium cans | 200 – 500 years | Plastic bags | Between 20 – 1000 years |
| Cardboard box | 2 months (in water) | Plastic bottles | Forever |
| Cigarette butts | 1 – 5 years | Plastic coated paper | 5 years |
| Disposable nappy | 450 years (in water) | Plastic film containers | 20 – 30 years |
| Fishing line | 600 years (in water) | Plastic six pack holders | 100 years |
| Glass bottles | Forever | Styrofoam | Forever |
| Leather | Up to 50 years | Tin cans | 50 years |
| Nylon fabric | 30 – 40 years | Wool socks | 1 – 5 years |

* Give students the chance to change any items on the timeline if they want to.
* Have students share why they have made any changes.
* Do students agree with the information on the chart? Where do they think this information came from? Can students come up with a ‘fair test’ or ‘investigation’ of their own to see how long they think it will take for items to break down?
* Discuss the implications of this activity related to the idea of pack it in pack it out.
* Take one item from the timeline and make a list of all the possible consequences of that item being left behind – either buried or accidentally. Have students think about who or what might be affected by things that are left behind. If required search on the internet under Pack it in Pack it out for suggestions that may help students thinking. Both positive and negative consequences should be raised.
* Repeat the process of analysing items from the timeline in small groups.
* Brainstorm possible ways of minimising all possible negative consequences from a visit in the outdoors. Refer back to earlier discussions about our tenure on earth connected to how long it takes for items to break down.
* Select an idea from the above brainstorm and develop an action plan to implement on your next visit to the outdoors (or permanently at school!), that will ensure the intention of pack it in pack it out and leave no trace is part of your trip. This may be as simple as having a litterless lunch, visit: <http://www.wastefreelunches.org/index.html> or ‘poo pots’ visit: <http://www.doc.govt.nz/parks-and-recreation/national-parks/aoraki-mount-cook/plan-and-prepare/pack-it-out-poo-pots/>

* Go back to the timeline and see how many items can be removed because there are ways we can manage that waste and stop it entering into the environment and/or it can become a resource such as composting organic materials once back at school.

**Safety Considerations**

* Ensure the ground is clear of debris and not too damp if running the experience outdoors.

**Equipment:**

* Timeline cards
* Items to sort and/or pictures of typical outdoor items that might get left behind

**Location:**

* Classroom
* School grounds

**Time:** 1 hour

* Have students debate whether it matters if something is left behind or not.
* Have students obtain the perspective of a range of different people, for example a DOC Park Ranger, a younger person, a teacher in another subject area. Listening to other cultural perspectives is important too, for example a Māori perspective is that all things have a ‘mauri’ or a life force or essence. Leaving human waste in inappropriate places can affect the mauri of that place or thing.

**Possible adaptations:**

* Include an investigation into how long it takes for some common food and other waste materials to break down in a fair test situation in the school grounds.
* Include a cultural perspective for all visits whereby it is determined what is culturally appropriate to ‘pack into’ the activities and therefore, what is appropriate to ‘pack out’. The focus in this approach would be to consider the potential ‘footprint’ of our activities on the environment from a range of perspectives. For example, for some Māori it is inappropriate to stand on the top of a mountain as this is akin to standing on the head of an ancestor, urupa are traditional burial grounds and are tapu. It is not appropriate to enter these sites.

***Acknowledgement***

*This activity is adapted from a version originally sourced from* [*http://efs.tki.org.nz/Curriculum-resources-and-tools/Waste-timeline*](http://efs.tki.org.nz/Curriculum-resources-and-tools/Waste-timeline)