***Be a bug detective!***

**Key concepts: sustainability, camoflauge, decomposition, habitats, invertabrates (bugs)**

**Core objectives**:

1/ Learning to see why bugs are so important to our environment

2/ Understanding the bugs camoflauge themselves to protect themselves

3/ Identify where bugs habitats are

4/ Encourage human actions to look after our bugs

**Preparation/ Background**

In this session, you are going to help the students understand that bugs are really important to our environment and shouldn’t be thought of as a nuisance, or to be killed. That they have a purpose to play in the big interconnected world that we live in.

It is really important that you don’t give students, too many clues as a starting point. That they simply are immersed in the experience. To begin with, find a nature area (preferably with lots of trees, low lying plants and leaves). Place 10 multi-coloured pipe cleaners (hidden) in various locations (try to place in high to mid-level to low areas) and ask students to walk silently (one behind one another), to observe where the pipe cleaners are. This is the introductory activity to show them bugs are hard to find, and need patience and detective skills to find them. Next, encourage students to find the bugs that might be living in this natural environment, using their hands and magnifying glasses as equipment. Finally, bring students back together and ask, why are these bugs so important to our environment. And how can we encourage more bugs into our garden environments.

This could be a great one-off session or broken down into more bite-size smaller sessions. It could easily become a terms work.

**Materials**

10 Pipe cleaners

Magnifying glasses

Decomposition Storyslide

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| **Time** | **Lesson structure** | **Logistics/ resources** |
| **2mins**  **5mins**  **5mins** | Be in a nice outdoor seating area  **Introductory setting the scene- immersion activity**  1/ Ask students: Why do birds come to the trees and forest areas? (to find food: nectar and bugs, nests and safety)   * **You** are going to become a bird and looking for some bugs to eat (*the bugs are**pipecleaners)*   2/ Ask students: Where might you [as a bird] look for food? (plants, trees, trunk, under leaves, underground, under logs)   * I have put some pipe cleaners out along the path. You need to look for them and count them up in your head (without telling anyone) and at the end, I will ask you how many you found.   **ACTIVITY**: walking trial silently in a line – counting for pipecleaners.  At end, gather students around. How many did you see? Was it hard to see them? Why/ why not?  Introduce word: camoflauge  The pipecleaners were camoflauged/ blended in to the natural environment so their predators (birds) couldn’t eat them. | Already laid out 10 pipecleaners along a 20metre trial (in bushes, plants, in ground)  Show students what a “pipe – cleaner” looks like  Walking silently. Encourage students to count in their heads  Gather students around  Bring students back to natural outdoor seating area |
| **10mins**  **15mins**  **10mins** | **Introduce learning intention with students.**  In this session, we are looking at why bugs are so important to our environment    1/ Ask students: Where did we see those camoflauged pipecleaners in our environment? (plants, trees, underground, flowers)  2/ Now, we know that they might be difficult to find. What skills will we need in order to find them? (thinking about patience, team-work, workly silently)  3/ What sort of equipment will we need to find camoflauged bugs?   * Wiggly fingers (and explain purpose behind them) * Magnifying glass (show how to use them)   Encourage students to go off and be ‘bug detectives’ and using their best detective skills (teamwork, patience, being slow and doing a good job) to find them.  **ACTIVITY: finding bugs**  Bring students back to the sitting area.  4/ Ask students to pair/ share to summarise what they saw, where they saw those camoflauged bugs. And if recognised any that they saw. | Bring students back to sitting down  Helping students to realise that being noisey and rushing will give them limited success in finding bugs  Ask students to show their 10 wiggly fingers. This is their best tool and can use them to scrape leaf litter and look under logs. Introduce a magnifying glass to them – and how to use.  In small groups is best  Encourage discussion. Were bugs 4 , 6 or 8 legs? What was the shape/ size/ colours?  -> An opportunity to extend students here; drawing/ writing about the creatures they saw. |
| **10mins** | **Conclusion**  Show students ‘decomposition’ storyslide of ‘why bugs are so important’, explaining as you go.  6/ Encourage students to explain the cycle to their friend  7/ Say to students: If we didn’t have these bugs/ critters breaking down all our leaves and logs, we couldn’t walk around. We would be neck-deep in trees! | **A decomposition story slide is NEEDED showing these points (in a ciruclar loop)**  a/ Leaves fall off the tree in autumn, trees get old and die and fall to the ground  b/ the bugs (centipides, millipedes, snails etc) come out and eat lots of food (leaves and logs), break it all down. This called decomposition.  c/ Keep eating leaves and breaking it further down (so leaves look like skeletons, and logs have tunnels in them)  d/ Bugs poo everywhere  e/ poop adds to the soil, so new trees can grow everywhere.  f/ cycle begins all over again |
| **5mins** | **Action plenary**  Ask students:  1/ How can you encourage more of these bugs into your gardens at school and home?   * Think of where we know camoflauged bugs like to live and create natural environments for them | Creating an insect friendly garden. An area that has log stumps, areas of leaf litter for critters to use.  Find out what bugs like which trees and plants. And plant those. |

*This lesson was adapted from Christchurch City Council (2013). Parks Detective. Learning through Action Programme*