

## Challenges in the outdoor Environment

- **Look for real life situations where children can naturally problem solve.** For example if there is a problem with tidying away resources, encourage the group to think why this is a problem, write down their suggestions. Encourage the children to come up with ideas for solving the problem and try out one of their suggested strategies, even if you think some ideas are workable. This can help a child or group to articulate their thoughts and opportunity to highlight and explain some problem solving language.
- **Building a collaborative community of problem-solving/Pocket-sized prompt sheets for problem solving : Adult role**

These prompts are especially useful if you are twitching to intervene. Stand back and observe the problem solving strategies being used before offering prompts to scaffold children's learning.

### ***Describing prompts: Say aloud what the children are doing***

- Breaking a problem into smaller parts
- Act out an idea
- Look for a pattern
- Estimate and then check in order to improve

### ***Reasoning prompts – I wonder if you could try.....***

- A simpler way
- Working with others
- Doing one thing at a time
- Look for a pattern

### ***Record the process – why not.....?***

- Draw a picture or diagram of what you did or what you want the outcome to be
- Make a model
- Produce an organised list

### ***Deepening the learning prompts***

- What worked well?
- What would you do differently next time?
- How did you feel when.....?
- Does this remind you are anything else you have done before?
- It would be useful if you could tell X what you did?

- **Open-ended maths challenges: Using pine cones**



- **Estimate the number of cones in a bag:** When collecting cones, challenge children to estimate how many have been collected. Tip them out and check. If children are ready, you can model counting in twos, threes or other clumps or they can show you how to do this.

- **Give children time to investigate cones.** Children find the variety of shapes and sizes fascinating. It is worth ensuring they have plenty of opportunities to play with cones. Encourage children to discuss the similarities and differences between the cones as they investigate
- **Invent games which use cones:** Cones can be used as counters. However many simple games can be made up by children. For example, try:  
 Throwing cones through a hoop that has been hung up. Talk about the chances of this happening and investigate the effect of how far away you stand from the hoop.  
 Play boules. Use the biggest cones you can find as the boules. Mark them so that each person can identify their pair of cones. Use a tiny cone as the jack. The jack is tossed from a line or marker. The aim of the game is to get one of your cones closest to the jack. Use a measuring tape to work the distance of the winning cone to the jack. Usually several rounds are played.  
 Have a target on the ground – such as a hoop or circle of leaves. The children throw five cones at the hoop and work out how many have landed inside the hoop and how many outside the hoop. This is useful for practising number bonds. It also makes a good team game where children are on the same team rather than competing against each other, when learning number bonds from 10 to 20.
- **Create arrays that you see around you.** When developing children understanding of arrays, cones work well as they fit nicely into egg boxes, baking tins and other fixed array shapes. So are easy to use in this context. They are also a hand resource to get children to quickly represent arrays seen outside on the ground. For example a child may spot a 2 x 3 array of windows on the side of a building and create the same pattern using cones.
- **Use cones to teach place value.** In role play and games, set up an exchange system. 10 tiny cones, can be swapped for one medium-sized cone. This can work well for games that involve collecting points and also games where cones are laid out and children have to guess the value.

- **Open-ended maths challenges: Counting sticks/Number bonds**



One half of the children pick the number bond, e.g. five. Then they decide how many beats up to and including that number that they will tap out. So they may choose 3 and tap out 2 beats on the grounds. The other half of the class listen to the number of taps and then add the extra taps, which in this instance would need to be 2 to make 5.

Activity ideas taken from Creative Star – [www.creativestarning.co.uk](http://www.creativestarning.co.uk)

*Messy Maths – A playful, outdoor approach for Early Years* by Juliet Robertson