THIS WORKS!

A Technology Education Project

Module 7: Breaktime workout – The machine is ready.

💬 Story:

Refreshed by a good night's sleep, the Kip crewmembers are ready to begin the final day of construction. Maco is going to be the work supervisor today. He gives his friends clear and detailed instructions on what they should do next. He sounds so funny, almost as if he's controlling robots: "Tuka, take a toilet roll tube from behind the box. Turn around. Take two steps forwards. Turn right. Place the toilet roll tube on top of the egg box. Soca, take two steps backwards. Turn right. Take four steps forwards. Pick up the milk carton caps. Turn around. Take three steps forwards. Turn left. Place the caps inside the circles that are in the box." (Haven't we heard these kinds of instructions in class before? Yes, if you did the module 2 mentoring exercise!)

Time passes quickly, and detailed work can sometimes make you feel a bit tired. No worries – Tuka always has some breaktime workouts up her sleeve to restore everyone's energy levels. "Hands up, hands down, squat and rise! Bottom out, knees together, bounce around in a circle! Wave your hands, move your legs, shake your antenna! Do a side stretch, now the other side, and back to your place!" Phew! After waving their arms and legs around like that for a bit, their dexterity has returned!

It's now time for the Kip crew to put the finishing touches to their machine. Waaba paints the machine in cheerful colours with long, curving brushstrokes. "Who would like to fetch more green paint?" Waaba asks. "Me!" Soca yells excitedly, and charges towards the storage cupboard. But oh no! As he gets up, he accidentally kicks the blue paint pot over. Paint splashes all over the place, and Maco's orange belly gets splattered in funny blue spots. (Oops! That was a mistake!) Everyone laughs at how funny Maco looks. "Oh well, at least the machine didn't catch this spotty disease," Maco says grinning, and hurries off to wash himself. As Maco rubs his hands with soap, a cup in the sink starts to fill with a cluster of different-sized soap bubbles. Maco gets an irresistible idea! He grabs one of the watercolour brushes that is waiting to be washed and carefully starts to paint individual bubbles. Wow, that colourful cluster of soap bubbles looks amazing! Excited, he calls the others over to admire his beautiful artwork!

At last, when the final piece of foil and the last bead has been glued into place, the machine is finally ready! Wow, it looks great! And yes, it really does move! The Kip crew rejoices, as their construction project has been completed right on schedule. All that's left is to pack the machine up carefully. They do this calmly and thoughtfully. When the machine has been protected and packaged, they write on the lid in clear handwriting: "Smeek the Lizard. Machine Gala."

Waaba remembers that there is still one really important thing left to do. Ah yes! The Kip crew searches for the prettiest piece of paper that Maco has in his house. Together, they sketch the journey that they have made together. They draw the message in a bottle at the beginning of the path and the Gala at the end. They write the crew's name at the top. In the middle section, they give details about all the things they've learnt on their shared voyage. Each member of the crew signs their name along the bottom edge of the paper: Tuka, Maco, Waaba and Soca.

And finally – for the last time during this journey – the Kip crew shout their cheerful salute: "Form a circle, paws together and shout Kip!"

Discussion tips: Why is it important to do some exercise during breaktimes? What other things could you do to maintain your concentration and stay alert? What does 'Gala' mean? In this case, could it be more like a machine trade fair? Who should be invited to the gala? Parents, the principal, mentors, and maybe some other important people? When is the Gala? What is the programme for the Gala?

Newslink: What do colors mean? https://www.thisworks.fi/color

Game: "The Kip crew's communication game"

In this game, we're going to model different programming languages with symbols. You can find ready-made symbol chains in the material pack. First, work together to decide what each symbol means and then follow the instructions (for example, a square means jump with both legs, a triangle means do a squat, a circle means clapping).

Exercise:

Before you continue building your machine, you can try Maco's soap bubble painting! Give the team a glass or small cup full of water and a little liquid soap. Use a straw to carefully blow some bubbles in the water. Then very carefully colour individual bubbles using small paintbrushes. You can use watercolours or gouache. Do you need a little or a lot of water on your brush? And what about paint? Try it and see! Can you paint bubbles that are next to each other in different colours, or will the colours mix? What will happen to your artwork in the end? Watch it and see what happens.

Suggestion for pre-schooler cooperation: "Tuka's breaktime workout"

In your teams, make up your own breaktime workout. You can use the symbols from the communication game or invent your own symbols and meanings. Write the instructions for each symbol on a piece of paper. Present your breaktime workout to the other teams.

Suggestion for mentor cooperation

Put the finishing touches to the moving machine.

Oops! That was a mistake!

What mistakes have been made during your shared journey? What have you learnt from them? Why are mistakes important? Are you afraid of making a mistake?

Documentation:

Take a photo of your soap bubble artwork and save it in your portfolio. Also take photos while you're building your machine, and of the finished machine. Save these pictures after the other photos of your machine. **Tip:** Do pictures help you remember everything that has happened on the journey? Did the finished machine look the same as in your design? Which of the learning moments that happened during our journey was the most important for you? What was your team's shared star moment? What was the moment when each person learned the most? Where there any moments that weren't very nice? Did everyone manage to document their own strengths?

✎ Homework:

Take the Gala invitation home! You can find a ready-made suggestion in the material pack, but it would be great if every student could make their very own invitation! NOTE! Don't forget to send an invitation to the principal as well. There's a ready-made invitation in the material pack.

✉ Message for parents

Our shared journey with the Kip crew is coming to an end. During this last module, we developed our multi-literacy skills and got an introduction to coding by modelling a programming language with the aid of a symbol system. We invented some fun morning workouts for robots and demonstrated them to each other. Our exercise for this module was to colour some small soap bubbles. We made some beautiful artwork! In our teams, we finished our moving machines and added the final photos to our portfolios. We discussed what kind of learning moments we'd encountered along the way, what had been the most important moment for each student, and what had taught us the most. We also planned the upcoming Gala together – and you're also invited. There was no homework for our project this module, but we hope that we'll continue to share fun learning moments with our parents at home anyway. Thanks for your contribution to the This Works! learning programme! We're looking forward to showing you what we've accomplished. See you soon!"

CURRICULUM: ≋

When doing this module's activities with your students, you should note the following objectives and content for elementary instruction:

- **TC4: conveying information using a variety of symbol systems**
- **MA: geometry, writing step-by-step instructions and following instructions**
- **ENV: researching phenomena, research problems**

This is based on the Finnish National Curriculum