



Balancing Sculpture



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Duration	75 minutes for activity;
Target group	Students age 9-12
Connection to curriculum	This activity can be linked to social studies, sustainability goals, environment studies, physics and arts
Particulars	Two weeks before activity start to collect waste from home Activity can be done both inside or outside, depending on circumstances





Outline

The project is to create a balancing sculpture from reusable resources, packages, waste from home, natural materials and other things that might be suitable for each place. The participants collect material for the sculpture, packaging, scraps and various renewable materials (plastic, paper, metal, wood, fabric, glass) that are produced in the home one week prior to making the sculpture. They can also go on a field trip around the local area and collect natural material from the environment, small stones, branches, pine cones, straw, sand, gravel, shells. If the project is part of ongoing class work, it can be related to something that the students have already been doing.

Connection with sustainability

The goal of the project is to connect the Balancing sculpture, for example regarding the materials used or result, to a theme related to sustainability goal or goals. It could be on climate change, poverty, equality, food waste, consumption, generation of trash, etc. Thus, objects within the sculpture can reflect specific goals or the sculpture itself.

Health and safety

Hazard	Controls
Sharp edge materials, for example glass, cans and wire	Use gloves, point out the danger of sharp materials to the students; watch out for sharp edges and put those things to the side and not in a pile with other material. Have first aid kit in room and make sure there is enough bandaid
Use of sharp tools, for example knives, scissors and pliers	Emphasize caution in handling. Some sanitiser and band aid can allow students to continue after a scratch or a small cut.

Essential materials - Base, objects to explore and connectors

Item	Comment	Total
Waste materials e.g.: paper, plastic wrap, sushi sticks, metal cans, stoppers, lids, toilet paper rolls, glass jars, bottles, plastic containers etc.	Collected at home for about a week. Ask the students to clean the waste before bringing it to school	Enough for each group to create a sculpture.
Fabric	Students can bring old and worn out clothes	
Variety of paper, cardboard	To cut out patterns or make a sign. Facilitator provides or found in waste	
Magazines and other materials with different pictures, styles, etc.	Cut out pictures or text to reflect the sustainability goals	
Connectors: rubber band, string or yarn, tape, glue stick, paperclips, wire, clothespins	To connect things together	Enough for each group to play with.
Natural materials: stones, sand, gravel, branches, pinecones, shells, straws	Just an example of things, depending on the surrounding area	



Essential tools

Items provided by facilitator	Comment	Total
Scissors	To cut things and make holes	4
Pliers	To bend wire	4
Hammer - nails	To fasten things together	3
Screwdriver	To fasten things together	2
Hole puncher	To be able to fasten things together or hook onto one another	4
Pens – pencils – paint brush	To decorate the sculpture	10
Crayons, coloured pencils, paint	To decorate the sculpture	Plenty of variety
Scale	To explore the weight of things	1
Measuring tape	To measure things, e.g. to estimate where the balance will be	2

Preparation

Ask students to collect usable waste materials 1 or 2 weeks in advance. When the material has been collected, it is important to group similar things together in boxes, on a shelf or a table. The facilitator needs to be sure to allow a space for the material in boxes or baskets to sort in when the gathering of material takes place. The students take part in sorting the material they bring from home.

Make a balancing sculpture yourself to try out different techniques and to have examples to show students.

To give the student the opportunity to explore what materials are available, it is good to spread them around the classroom sorted according to kind of material, color or size. For example, make one table with cardboard and paper materials, another with the tools and connectors and two tables with the other materials. This makes the material more attractive for the students to use and encourages the groups to go around the whole space and see what others are doing.

The room needs to have distinct workspaces for each group.

Make an introduction poster (see appendix).



Activity Plan

Introduction

Explain tinkering, what it is about in a few words.

The facilitator tells the students that they will be working in groups (3 to 5 students per group) to make a balancing sculpture. It is important that the facilitators have decided in advance how to divide into groups, e.g., through play, according to areas of interest, students decide for themselves, or the facilitator decides. The facilitator has made an introduction poster (see Appendix) and a couple of photos as an example of sculpture that show some ideas and possibilities.

Address the topic of sustainability and how the students can connect the balancing sculpture they make to one or more of the UN sustainability goal. Have a poster of the sustainability goals in sight for the group to look at.

If the facilitator is meeting the students for the first time, they can open a dialogue on sustainability or some aspect of sustainability such as climate change or food waste – and collect different ideas or questions on a board (whiteboard, flipchart, post-it stuck to a wall, etc.).

Ask the students how they can connect the balancing sculpture they make to sustainability goals. They can choose which goals they relate to before they begin or decide after the sculpture is made. When the sculptures are all ready each group can show their sculpture to the class and the whole class can reflect on which sustainability goal they “see” in the sculpture.

Managing the activity once it is in progress

Tell the students how much time they have to build the sculpture. Emphasize thinking about the base for the sculpture and what material that should be, what kind of objects they want to explore, maybe with different weight or form, and think about connectors to connect things together.

The facilitator supports the participants in their work and observes the work and process of each group. They are careful to browse around the area, watch each group closely, provide feedback, help, and support. It is important to address that in Tinkering projects, there is no such thing as “stealing” an idea from others and everyone can get inspiration from other groups.

Since the work gives an opportunity to get immersed in the work, make sure to remind the students about the time so that they can finish their work.

Here are few guidelines you can use to support your students:

- **Pose questions instead of answers:** *could you use anything else instead of the box?*
- **Create a supportive and inspiring environment:** *I really like how you are using the material.*
- **Help in case of frustration and failure in a positive and productive way:** *why do you think this is not working for you? Or hand them a material you think might help.*
- **Encourage learners to pursue personal interest:** *don't worry if you think it might not work, have a go anyway.*
- **Encourage collaboration:** *maybe you can ask them how that worked for them.*
- *Encourage them to walk around and look at the work of other groups for inspiration*
- Give heads up on time frame like reminding that there are 20 more minutes left. When an hour has passed, everybody helps with cleaning up around the sculptures.



Conclusion

Each group shows and tells about their sculptures. During the presentations have these questions in mind:

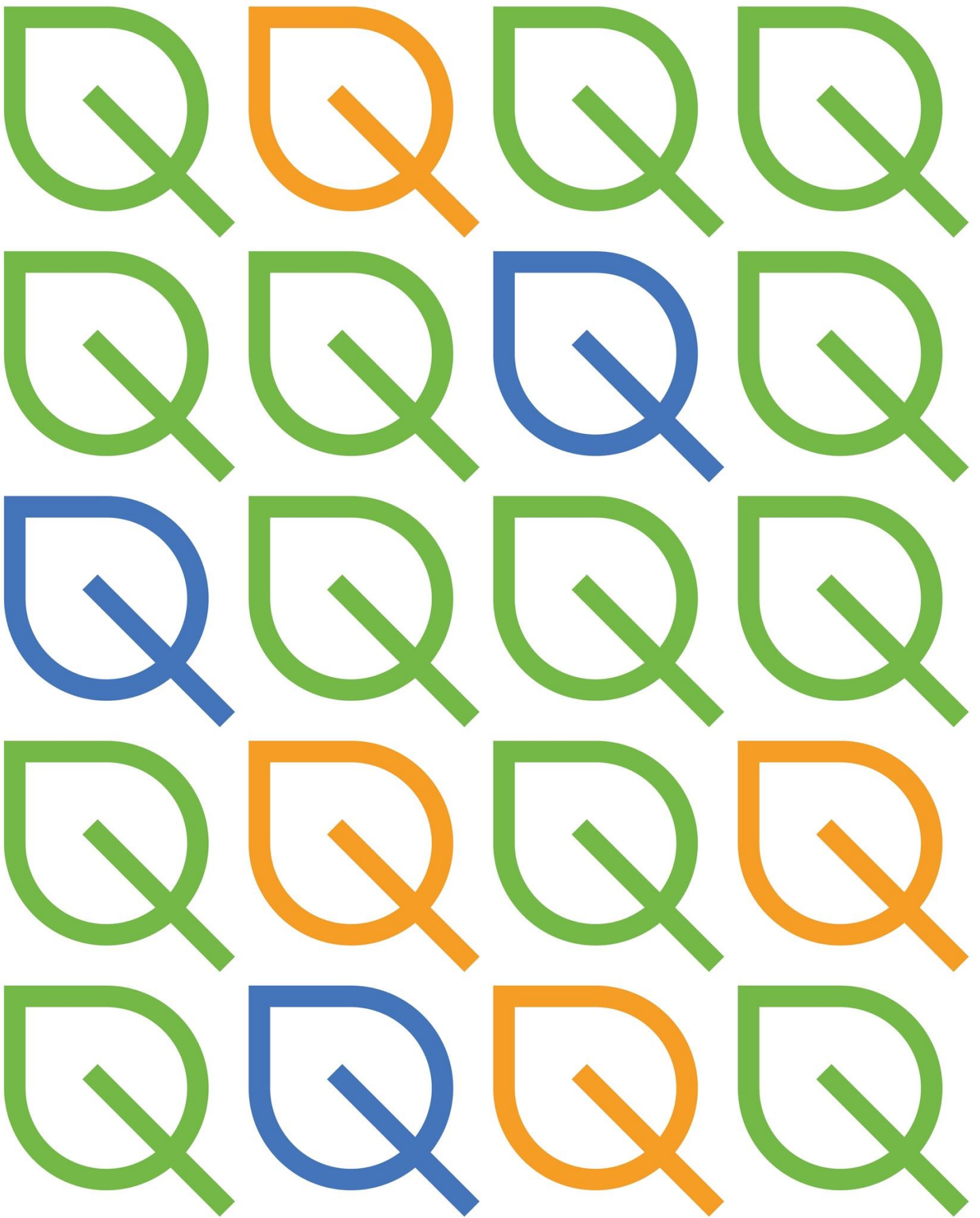
- How did it go to find balance with items used?
- What are you most happy with regarding this project?
- What was difficult and why?
- What sustainable goals do you think your sculpture represents?
- Do we need balance? What happens if we don't have balance? How can we support balance?
- And most importantly - was the activity enjoyable?

It would be great if the sculpture could stay in the classroom for a few days, remember to take photos and think about how you can clean up the activity in a sustainable way.

Go deeper

The balancing sculpture can only be the beginning of much more, or part of something bigger. You can think of it as a playful introduction into tinkering or the continuation of otherwork.

- Connect this activity to a stop-motion project, make a stopmotion about the process of making the balancing sculpture.
- Make a balancing sculpture that moves – blow or poke to make movement.
- If the sculpture is already set up, can something be removed without interrupting the balance?
- Make a balancing sculpture outside, only with natural objects.
- Let the balancing sculpture “speak” through having the group present it to the class or parents and discussing how it relates to the sustainability goals.



Appendix



Examples of possible outcomes





Example of an introduction poster

Make a balancing sculpture
Can you link it to sustainability goals ?

Material: natural and reusable material
Structure: the base of the sculpture, a variety of materials to explore and connecting parts

TINK@School

Links to related material:

Exploratorium

<https://padlet.com/TinkeringStudio/balancing-sculpture-gallery-7t2lcaaema74z190>

<https://www.exploratorium.edu/tinkering/projects/balance-explorations?asset=3140-tw-1316901889989115908-0>

<https://www.exploratorium.edu/tinkering/projects/balance-explorations?asset=3140-tw-1320791032682876929-0>



Colophon

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