



## Prepare a delicious salad

### Topics

Units of measurement  
Arithmetic  
Mathematical inference

### Time needed

At least 90 minutes  
(2×45 minutes)

### To prepare before class

Worksheets for students,  
a sample fruit and vegetable price list (perhaps from local market or shop), kitchen utensils necessary to make a salad, universal Design Thinking Wheel. For the sample price list you can also give students access to the internet or plan a visit to a grocery store to check prices.

### Other teachers

to work with

Nature/biology teacher

### Take a look at

The student worksheet

The task is to prepare a salad that will be tasty for everyone in the group. Students should estimate the amount of salad necessary for the whole class and make enough for everyone but not too much. During this process, guided by the design thinking method, they will be gathering information, estimating amounts of produce and calculating weights.

The decision on the cost or amount of the salad to be allocated per person can be left for the students to make. You can also decide beforehand yourself or discuss it with the students at the beginning of the lesson. It is important that the assumptions fit the actual needs of the students and of the teacher.

### Possible modifications

1. You can introduce additional restrictions on the maximum budget per person, the number of ingredients (e.g. at least 3 and at most 8) or the colour of the salad (e.g. only green or red produce), or create a fruit salad.
2. You can prepare a different meal or decide to prepare something vegan, gluten-free, etc.
3. You can also combine this challenge with reducing sugar intake and check how much sugar is hidden in the salad the students decided to prepare.

### Tips for teachers

Below, you will find some practical tips that will help you organise students' work on this particular topic. You can decide at what point you want to introduce the challenge: before discussing certain concepts or afterwards, as a summary exercise. If you use the challenge to introduce a new topic, try to make students intuitively arrive at the solutions on their own. Then sit down together and decide which of the solutions are most effective and why. If you use the challenge as a summary exercise, make sure the students refresh their memories concerning the theory behind it and show them at which stages the theory was actively used. In any case, remember to point to the practical application of the knowledge gained in the process. Suggest using the information gathered at each of the stages. You can also use other examples apart from those referred to in the scenario.

### Stage 1: Empathising and identifying needs

The aim of this stage is to think about the needs of all students and of the teacher. Remember that at the end of the activity you should go back to the identified needs and check if they were met.

- During this stage, all the students can work together or they can be divided into smaller groups.
- Encourage the students to formulate questions on their own. If they have a problem with formulating questions, you can do it together with them. You can also prepare sample questions that will inspire your students. This is especially important if you are only beginning to work with your students using the DT methodology.





- You can ask the students to think about:
  - what they like/don't like to eat
  - whether they have any allergies or other dietary restrictions
  - what their favourite flavours are.
- Together, decide whether any of the students has specific needs or limitations that should be taken into account.
- The results of all discussions and decisions should be written down. In this way students will easily refer to them at subsequent stages.



## Stage 2: Analysing needs and resources

**The aim of this stage is to gather as much information and precise data (including exact numbers) as possible. This will constitute a point of reference for future work..**

- From this moment on, students should be working in small groups.
- They should determine some basics at this point:
  - the total cost of the salad (not exceeding a certain amount or, in a more difficult version of the task, a precise amount of money to be spent),
  - the average serving per person,
  - the time necessary to prepare the salad.
- The students should also decide on the equipment they have at hand, on the way to get the necessary products and on their prices (and how to establish them if you do not provide a price list).
- Decide whether the students will be responsible for establishing this information or you will provide it before the class. The list of the basic guidelines can be edited as needed.
- If you decide to modify the challenge, you can, for example:
  - allocate a budget per person,
  - introduce restrictions as to the minimum or maximum number of ingredients.



## Stage 3: Generating ideas

**The aim of this stage is to generate ideas that lead to achieving the goal. This is not the time for finding the ultimate solution. Instead, students are to propose various solutions that will be later tested and refined.**

- Decide whether you want to organise a general brainstorming session or divide students into groups.
- The aim is to get different concepts of what might meet the identified needs. There should be no bounds as to where the students go with their ideas.
- At this stage students do not make any calculations. They only estimate the approximate cost of the salad and the time necessary to prepare it. At the next stage, they will check their estimates against reality.
- Decide how ideas should be presented: as a drawing, collage or other graphic form, or as a simple description or table.



## Stage 4: Prototyping

**The aim of this stage is to verify how the presented ideas work.**

- This is a key phase in your project during which you will make precise calculations. It is worth allocating enough time for this stage.
- Students should take a critical look at their proposals and choose the one that is realistic and best fits the needs of the group determined beforehand.
- Here, the task is to decide on the number and nature of the ingredients based on previous assumptions.



- Students should make a detailed shopping list including all the products, their amount and the estimated cost.
- Make sure that the estimated total cost is in line with the assumptions.
- Encourage students to make sure that the chosen solution fulfils all the needs and assumptions before moving on to the testing phase.
- This is a good time to introduce changes and make improvements.



### Stage 5: Testing

**The aim of this stage is to test the chosen solution and put the selected idea into practice.**

- Start with a general discussion of the projects prepared by each group. Use the summary questions provided below.
- Make sure that students present their projects in a way that enables their direct comparison.
- Depending on your possibilities, choose a set of projects or project parts that you can test in the classroom.
- Jointly determine the rules and the time necessary to implement the proposed ideas.
- If it is impossible to prepare the salad at school, encourage the students to make it at home based on the prepared recipes and then bring it to school and eat it together during the long break (you can inform their parents about the task during a meeting).
- After the testing phase, jointly discuss the matter and decide whether the proposed ideas addressed the needs of the group and whether you will be using such solutions in the future.

### Summary questions

Remember to devote some time for discussion. This can be combined with student presentations. Talk to your students about their working process and what they learned. You can make use of our list of questions or formulate your own set of questions to make students aware of what they did and how it helped them.

Useful questions:

**What were your base assumptions?**

**What needs did you identify?**

**Which idea did you choose and why? How did this idea correspond to the base assumptions?**

**How did you make the measurements? Was every measurement method equally effective?**

**How did you divide work among group members?**

**Did everything go as planned?**

**Did you have problems? If so, how did you solve them?**

**Would you do some things differently next time?**

**How can you make use of what you learned in everyday life?**

During the discussion it may surface that students made their measurements inadequately or inefficiently and their results are not in line with the base assumptions. Treat this as a learning situation: avoid giving students the correct answers, encourage them to explore on their own; make sure their group potential is fully exploited.