Nutrition and Health

Materials

- Board: A3 paper (to be printed and laminated);
- Segment pieces options:
  - ready-made from the store
  - PVC
  - PLA and a 3D printer
- Dice with fractions or percentages options:
  - construction paper
  - wood
  - ready-made (depending on the desired difficulty level)
  - PLA and a 3D printer

Brief description

This activity engages users in graphical representation, fractions and percentages. The circle is comprised of 12 segments. The users are prompted to throw the dice to complete the circle with 2 different portions, shown in different colours. They need to keep throwing the dice until one of them completes the circle.

There are two options for the dice: fractions and percentages. The idea is to convert the fractions or percentages into the segments that complete the circle. For instance, 2/8 translates to 3/12 and 3/4 to 9/12. These two fractions make up the whole circle. The dice with the percentages is used in the same way. Both dice can be used together to make it more challenging. You can let users decide which dice they want to use.

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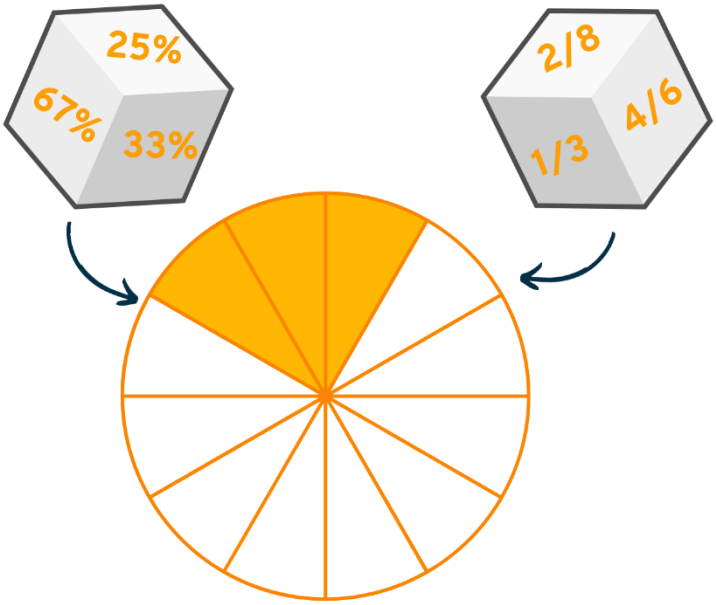

Figure 1. Demonstration of Nutrition and Health idea

In the figure above, you can see a visual representation of the exhibit idea with both the fraction and percentage dice. Once you throw the dice and bring 2/8 = 3/12, then you need to find the fraction or percentage that completes the circle with the remaining 7 pieces. The users keep throwing the dice until one of them completes the circle.

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Assembly

Design of all the pieces

Segment pieces: should be in 2 different colours to represent the 2 portions to be completed on the circle (12 pieces per circle, total 24 pieces).

Suggestions for pieces' colours: Choose colours that contrast one another to make it easier for users to distinguish between the two.

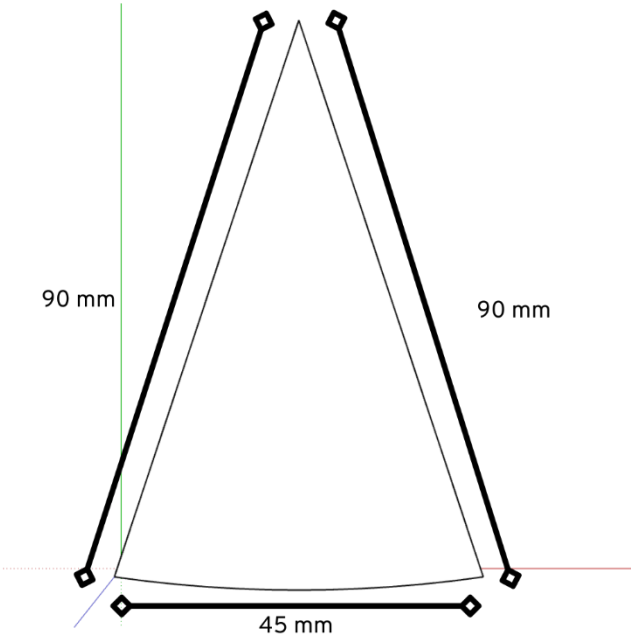

Figure 2. Measurements of individual pieces

Dice: The dice can be printed on a piece of paper to allow for greater flexibility on the fractions or percentages numbers and glued together.

Suggestions for dice colour and dimensions: The colour of the numbers should be contrasted with the colour of the dice. For dimensions, 6 cm x 6 cm is recommended.

Assembly

There are no assembly steps required. Once you have the pieces, dice and board, you are ready to use the exhibit.

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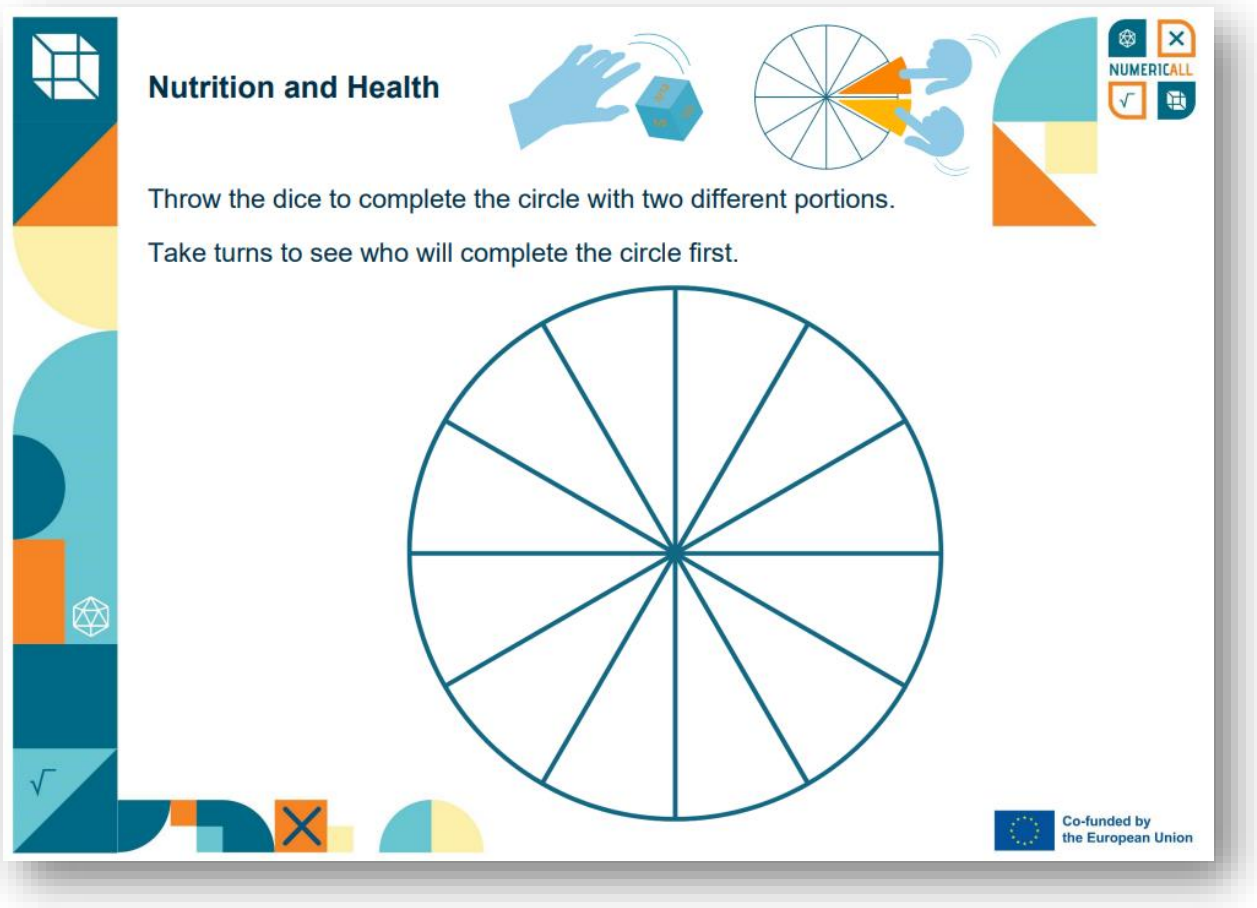
The Board (DINA3)



Other Options

The fraction/percentage dice can have raised pumps that can help adults with visual impairment understand the value more easily.

Explanation

This activity provides an understanding of fractions and percentages based on a circle made of 12 segments. It allows users to practice fractions and percentages conversion in the form of a game. Using the fraction dice entails finding the corresponding percentage and representing it on the plate (pie chart). The fractions can include decimals converted to percentages, such as 5/8 = 62.5%. Similarly, to increase the difficulty level, the percentages can include decimals. The fractions and percentages make up the two portions needed to complete the circle. However, not all of them can make up the circle. Thus, users need to keep throwing the dice and make the conversion to see which fraction or percentage can complete the circle.

Through this activity, users can engage in mental arithmetic, fractions and percentages, as well as graph interpretation and analysis.

Competences

- Mental arithmetic
- Converting fractions to percentages and vice versa
- Interpretation and analysis of pie charts

Observations

The functionality and assembly of this exhibit can be done in multiple ways depending on the materials used to construct the circle, such as putting the pieces separately on the circle or sliding them.

For 3d Printers (If applicable)

The dice and the segments of the circle can be made with 3D software and printer.