



important hints:

- Watch movie from 5:00 AM and answer question until 23:00.
- Solution movie and points provided at 8:00 the next morning.
- Answer weekend questions (Sat & Sun) until Monday evening 23:00.
- Answer **exactly once**. Answers cannot be changed.
- In case of questions, ask them via contact form on webpage **before** answering.
- Additional hints might be given in the „**hint of the day**“ (red bauble on webpage).
- Start with two jokers. Gain another joker by watching 10 solution movies. Jokers are played automatically in case of need.
- **Audience Joker**: See how the other participants voted and then decide. You can use this joker only once.
- **50:50-Joker**: Reduce the selection to only two options, one correct one and another one. You can use this joker only once.

Shopping list for PiA[®] – Physics in Advent 2023 www.physics-in-advent.org

- 1.)
 - a piece of corrugated cardboard, at least 10 cm * 7 cm in size. Important: must be smooth on both sides and the corrugations only in between.
 - a pair of scissors
 - two household rubber bands, each 4 cm long.
 - strong adhesive tape, about 5 cm wide
- 2.)
 - one orange
 - household knife for cutting through the orange
 - transparent container, e.g. a glass bowl
 - water
- 3.)
 - hot hotplate
 - water
 - pipette or biros
- 4.)
 - smartphone with the pre-installed "Phyphox" app
 - a rope lift (for example at school or in a shopping center)
- 5.)
 - kitchen grater
- 6.)
 - several pieces of white or light-coloured chalk
 - small bowl or cup
 - tennis or badminton racket
 - tennis ball
- 7.)
 - white sheet of A4 paper
 - transparent plastic ruler
 - dark pencil
- 8.)
 - a carrot
 - kitchen knife
 - wooden toothpick
 - water glass
- 9.)
 - water glas
 - a sachet of baking powder
 - 100 ml cooking oil
 - 30 ml vinegar
- 10.)
 - 4 plastic yoghurt cups that can be inserted into each other
 - water
 - kettle
 - freezer



- adhesive tape in two different colours or different coloured pens that write on plastic

10.)

- a glass of cold milk
- straw

11.)

- paving stone or concrete slab
- a pad or cloth to protect the floor on which the stone rests
- medium sized hammer
- strong adhesive tape
- a few pieces of sugar cubes or rock candy

12.)

- a cube of a parlour game (about 2 cm wide)

13.)

- water glass
- vitamine or effervescent tablet
- side plate

14.)

- five matches of the same size made of wood
- side plate
- some water
- small pipette or pen

15.)

- water glass
- 50g pepper powder

16.)

- two ice cubes of the same size
- a pan
- a wooden board (e.g. a breakfast board)

17.)

- kettle
- PET bottle, at least 1l
- funnel
- sturdy container in which the PET bottle fits, e.g. mixing bowl
- cold water and ice cubes

18.)

- water glass
- beer mat
- vitamine or effervescent tablet
- tealight / candle

19.)

- water glass with up to 8 cm diameter at the rim
- DIN-A4 sized piece of cardboard (sturdy, not too thin)
- four 20 cent coins

20.)

- straw
- 12 cotton buds
- liquid all-purpose glue
- 1l soapy water
- container in which a square of cotton buds fits upright and lying down

21.)

- four paperclips
- needle-nosed pliers
- set square

22.)

- sewing thread
- scissors
- a little soapy water
- pencil
- bottle with 2-5 cm diameter at the neck, e.g. a milk bottle.

23.)

- round bowl with smooth rim
- cling film
- some identical marbles
- some identical coins
- water

24.)

- a straw (paper or plastic)
- pin or needle
- water glass