

TEMPLATE for BEST PRACTICE EXAMPLES



1. Name of the project:

Dry Ice Balloon

2. Subjects covered from STEAM areas:

Science, Technology, Engineering, Math

3. Target group (age range and size of the group):

10-14 years old, 5-10 students

4. Duration of the activity:

30 minutes

5. Key words:

state of matter, pressure, changing materials, gas

6. Key sentence describing context of the activity, followed by short description (200 words):

Making the balloon to blow itself with dry ice (turning into gas)

You usually blow up balloons with air or helium, but did you know you can get a balloon to inflate itself using dry ice? Carbon dioxide is heavier than air, so dry ice balloons will rest on a surface rather than float.

Dry ice is the solid form of carbon dioxide. At normal atmospheric pressure, dry ice sublimates from a solid directly into a gas. As the gas warms, it expands. Carbon dioxide is denser than air, so if you drop a dry ice balloon, it will fall to the ground rather than float like a helium balloon.

7. Description of the activity environment, including the list of materials and tools needed:

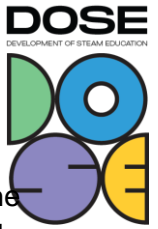
- Balloons
- Dry Ice Pellets
- Funnel (optional)
- Gloves

Environment: classroom; let the balloon to inflate on a table (no touching!)

8. Step by step, detailed description of the activity, including teaching and learning strategies:

1. Hold open the mouth of the balloon.
2. Place or pour dry ice into the balloon.
3. Tie off the balloon so that the gas won't escape.

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4. The balloon will inflate as you watch. You'll see water freeze on the outside of the balloon where the dry ice is cooling the air across the surface of the latex. How much the balloon inflates depends on how much dry ice you added. A small amount of dry ice will slightly inflate the balloon, while a large amount ultimately will make it pop.

9. Learning objectives/competencies:

pressure (inside pressure the same as outside), state of matter changing, carbon dioxide turning from solid into gas (not liquid)

10. Evaluation/Assessment guidelines:

Measure the balloons with different amount of dry ice: volume and diameter
Measure the ratio of the dry ice in solid and in gas state

11. Lessons learned:

Make sure students know the safety instructions: do not touch the balloon or the dry ice.
Keep the dry ice away from the students.
Do not put too much dry ice in the balloon because it will pop!
Make sure to use "fresh" balloons because they get fragile when they are old.

12. Additional information/Links:

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13. Contact person:

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