

STEAM Recipe

Theme	Pollution of the air
Target Age Group	7 – 9 year olds
Duration of Activity	60 – 90 minutes.
Resources/Materials Needed (exact details required)	<ul style="list-style-type: none"> • Glass jar with a separate lid • Paper (newsprint) • Water • Ice cube • Tin foil • Lighter • Recyclable materials <ul style="list-style-type: none"> ○ bottles (big/small) ○ caps ○ Brig ○ Plastic boxes ○ Egg cartons ○ newspaper ○ plastic bags ○ bubble plastic • Blue paper • White paper • Pencils • White pencils • Scissors • Cutter knife • Tape • Glue • Rubber band • Picture of a town with smoke • Picture with smog.
STEAM Components	Science, Arts, engineering



STRATEGIC PARTNERSHIP

AGENTS OF CHANGE IN EDUCATION

WHY	Goals/Objectives/Targets/Aims	<ol style="list-style-type: none">1. The children learn that air pollution is a problem and that it arises from the burning of different substances (oil in a car, garbage in factories...)2. The children work together in groups and combine their creative minds to come up with some wonderful ideas.3. The children think about what they know about air pollution. They don't only think about the cause, but also about what people are doing to solve it and what the children themselves can do to help stop the air pollution.4. The children learn to work with what they have. Which can be a lot or maybe it could be less than what they expect.
HOW	Method/Activities (i.e step by step instructions for teacher)	<p>Phase 1 The teacher shows the picture (look at materials needed) and starts a conversation about the different kinds of pollution. When the conversation gets to air pollution, the teacher asks more specific questions like: -Where does it come from? -What are the people doing to prevent this? -How does this happen? -Are there things that you do that pollute the air?</p> <p>Phase 2 The teacher addresses the fact that you usually cannot see air pollution. The teacher brings up another picture with smog on it. The teacher asks if the children know what it is. If not, the teacher explains where the word comes from (smog = smoke and fog). To show them that you can get to know a lot about the quality of the air by doing some tests, they are going to make smog themselves. You can either let them do the same experiment in groups or with you and the rest of the children. (I would choose one group so the teacher can do the part where the fire comes in.)</p> <p><u>Experiment:</u></p> <ol style="list-style-type: none">1. Cut a piece of the newspaper.2. Roll up the newspaper until it is a stick.3. Cover the glass jar lid with tin foil. Make sure you can put something on the lid later. (make a little pit.)4. Put the lid aside5. Moisten the inside of the glass jar.6. Put the piece of newspaper on fire and drop it in the glass jar.

		<p>7. Quickly put the lid on the glass jar. 8. Put an ice cube on the lid. 9. What happens?</p> <p>After this experiment tell them that this resembles the earth and its global warming. (If a factory burns something, there is smoke. In the smoke are little pieces of pollution. This smoke is hot and can't escape, so it gets in the air. Because of this, the earth gets warmer and the ice is melting. All the gasses that we make create a blanket around the earth.)</p> <p>Phase 3 Think with the children about solutions for this problem. Get to the point of making a machine. First let every child design their own machine on a white paper. Let them write down how the machine works in steps and let them appoint the materials. Afterwards, put the children in groups (make +/- 4 groups) and let them make a new machine which combines element of the machines they individually came up with. In the new machine must be a part of every individual machine. Let them make the new machine on blue paper and with a white pencil (they make a blueprint) Let the write down how the machine works in steps and let them appoint the materials.</p> <p>Now they have to build the machine in 3D with the recyclable materials.</p> <p>Phase 4 The groups each explain what their machine does and answer questions from the other children. End the lesson with a conversation about what they can do themselves right now to help reduce pollution, not just the air pollution. Do not forget to let them clean up their own spaces.</p>
<p>DID IT WORK</p>	<p>Reflection/Evaluation (where applicable)</p>	<p>The teacher can check on work throughout the task on multiple occasions. Key outcomes to prove the students understanding are the drawings, the machines and the final presentations.. You can also reflect on what the children know about pollution and what they could do to prevent it. Could you take some actions with the class after the task to clean up the playground, or start a recycling scheme?</p>

