

STEAM Recipe

Theme	Light painting.
Target Age Group	8 – 9 year olds
Duration of Activity	50 to 100 minutes
Resources/Materials Needed (exact details required)	photo cameras with shutter speed finger lights. Program Gimp2 https://www.gimp.org/ Dark room
STEAM Components	Science: use of the computer program Gimp2 to put photo's one on top of the other. Technology: use of cameras with shutter speed. Engineering: take a picture at the right moment. Arts: make a painting with light, unleash creativity. Mathematics: define shutter time.

WHY	Goals/Objectives/Targets/Aims	<p>Let the pupils get acquainted with shutter time of a camera and the way the device works. After that, they work with it in a creative manner and test out what happens if you change the shutter time.</p> <p>Pupils discover that, if you do so, you can photograph slowed movements. When they take place in the dark room, they test this out with finger lights. In that way they discover that they can draw figures with these lights eventually.</p> <p>In the end, pupils learn how to work with the program Gimp2. With this, they can put 2 figures one on top of the other to create a new one.</p> <p>Insight in mathematics is a must here, because they must be able to cut and paste and work in a frame.</p>
HOW	Method/Activities (i.e. step by step instructions for teacher)	<p>The lesson starts with a 'teaser'. Then, the pupils get a camera in pairs and discover the shutter speed of the device. They do that by making all kinds of tests. They take pictures, at first of still images, later of moving ones. In that way they can discover what shutter speed does to a photo.</p> <p>Then the pupils move to the dark room to experiment with the lights. At first, they make sweeping movements to</p>

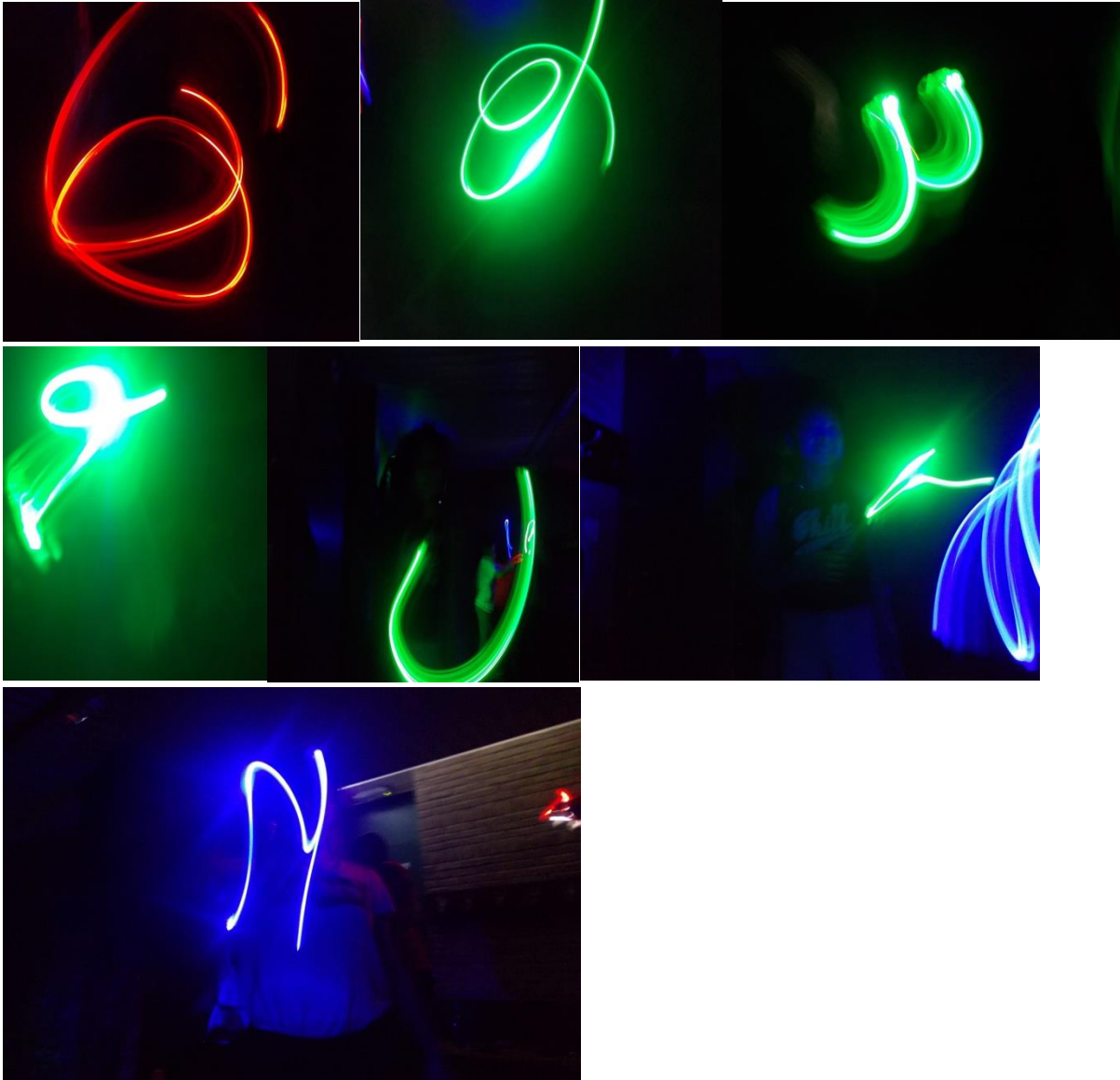
		<p>make clear what can be done with the lights. Then they start to create figures. They do that in pairs or in groups of four. (Never more than 4 pupils together).</p> <p>When they are ready in the dark room, they go to the classroom and open the program Gimp2 on the computer. They use a simple scheme to put two photos' one on top of the other to make a new figure.</p>
<i>DID IT WORK</i>	Reflection/Evaluation (where applicable)	<p>From time to time the lesson was rather hectic, but it wasn't disturbing. After all, the exploration of the pupils was what mattered, and some noise can come with that. Very important are the agreements you make with the pupils concerning the devices.</p> <p>When searching for the right shutter speed pupils will still need a lot of support.</p> <p>During my lesson, this part went very smoothly, so we could move to the dark room quickly.</p> <p>In this dark room structure is very important. I noticed that pupils were 'playing' more here than really experimenting. Putting the photos together went very smoothly thanks to the scheme and to be honest, I am quite proud of the result.</p>

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Appendix:

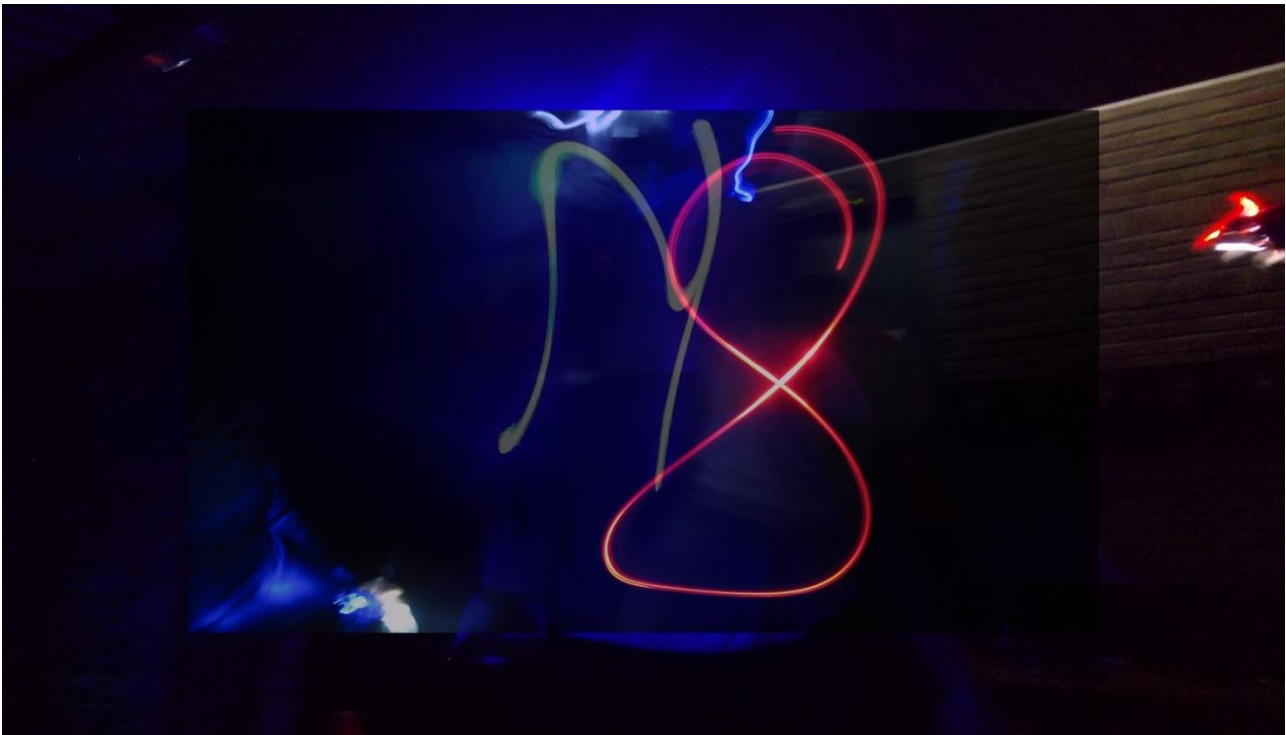
Exploration photo's:



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Result:



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