



BONI SCIENCE CENTRE

**UNDERSTANDING SCIENCE AND TECHNOLOGY THROUGH
EXPLORATION AND DISCOVERY**

4 STEP PROJECT

STEP 1

**Divide each
class in 7
groups**

STEP 2

**Excursion
NEMO Science
Museum
Amsterdam**

STEP 3

**Research
chosen
exhibit**

STEP 4

**Making
exhibit using
rest materials
and waste**

TIME INVESTMENT

STEP 1

Divide each
class in 7
groups

Half lesson

STEP 2

Excursion
NEMO
Science
Museum
Amsterdam

Half day

STEP 3

Research
chosen
exhibit

Half day

STEP 4

Making
exhibit,
poster and
presentation

**4 double
lessons**

Step 1

One class

7 groups

1 group

4 pupils

3 exhibits

21 different exhibits



STEP 1: DIVIDING EACH CLASS IN 7 GROUPS

- ONE CLASS → 7 GROUPS

- EACH GROUP → 4 STUDENTS

manager
researcher
builder
set dresser

1 group → 4 different roles

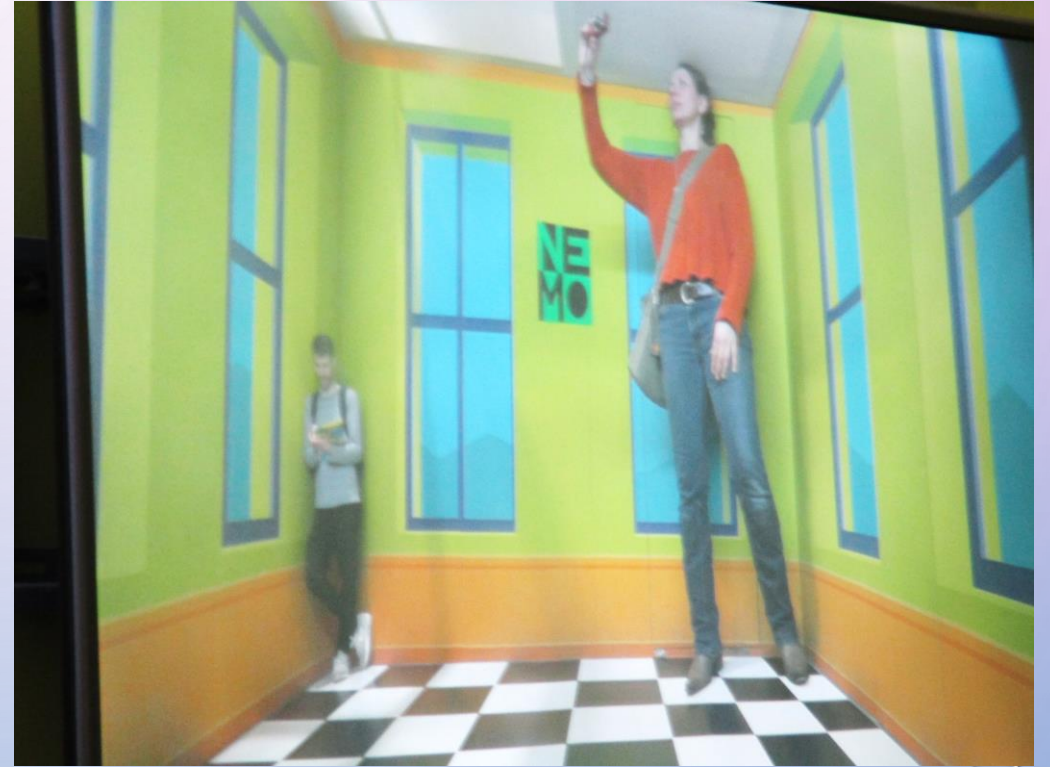
manager → Timekeeper, taskdivider, spokesperson

researcher → Responsible for information about science behind exhibit

builder → Responsible for construction drawing and requirements of exhibit

set dresser → Design of exhibit, research poster and presentation

STEP 2: EXCURSION NEMO SCIENCE MUSEUM AMSTERDAM



UNDERSTANDING SCIENCE THROUGH
SEEING, FEELING, EXPERIENCING, MAKING

EXCURSION NEMO SCIENCE MUSEUM AMSTERDAM



Brain confused

EXCURSION NEMO SCIENCE MUSEUM AMSTERDAM



Color filters

EXCURSION NEMO SCIENCE MUSEUM AMSTERDAM



Mirror drawing



EXCURSION NEMO SCIENCE MUSEUM AMSTERDAM



Soap screen



Rectangular
soap bubbles



EXCURSION NEMO SCIENCE MUSEUM AMSTERDAM



Weird wheels

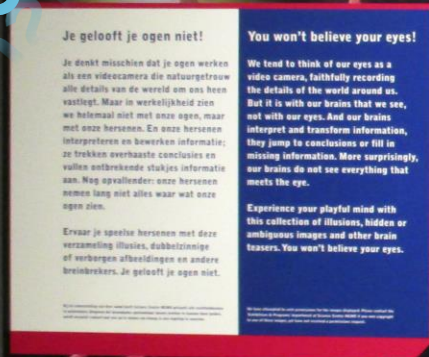
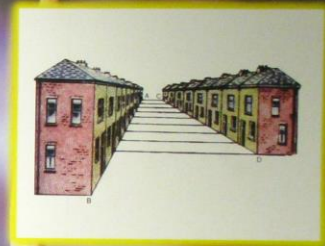
The playful mind
Optical illusions

Je gelooft je ogen n...

Je denkt misschien dat je s...
als een videocamera die nat...
alle details van de wereld op...
vastlegt. Maar in werkelijkh...
we helemaal niet met onze o...
met onze hersenen. En onze...
interpretaties en bewerkinge...
je trekken overhaaste conclus...
vullen ontbrekende stukjes...
aan. Nog opvallender: onze o...
nemen lang niet alles waar...
ogen zien.

Ervaar je speelse hersenen? ...
verzameling illusies, dubbel...
of verborgen afbeeldingen v...
breinbrekers. Je gelooft je o...

Illustratie: Diederik van Marrewijk
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Illustratie: Diederik van Marrewijk



EXCURSION NEMO SCIENCE MUSEUM AMSTERDAM

Arch bridge



Listening tubes

manager

```
graph TD; Manager[manager] --> Comm[Communication with teacher]; Manager --> Timekeeper[timekeeper]; Manager --> Team[Teammembers know what to do];
```

The diagram features a central node labeled 'manager' in green. Three purple arrows originate from this node. One arrow curves to the left and points to the text 'Communication with teacher'. A second arrow curves to the right and points to the text 'timekeeper'. A third arrow points straight down to the text 'Teammembers know what to do'. The background is a light purple-to-blue gradient with several water droplets of varying sizes.

**Communication
with teacher**

timekeeper

**Teammembers know
what to do**

STEP 3: RESEARCH CHOSEN EXHIBIT

Researcher

**What science does
this exhibit teach?**

**Answer to the
research questions**

**All teammembers
search for information**





EXAMPLE RESEARCH QUESTION:

Search for a recipe for soapy water

Answer found:

-1 CUP HOT WATER

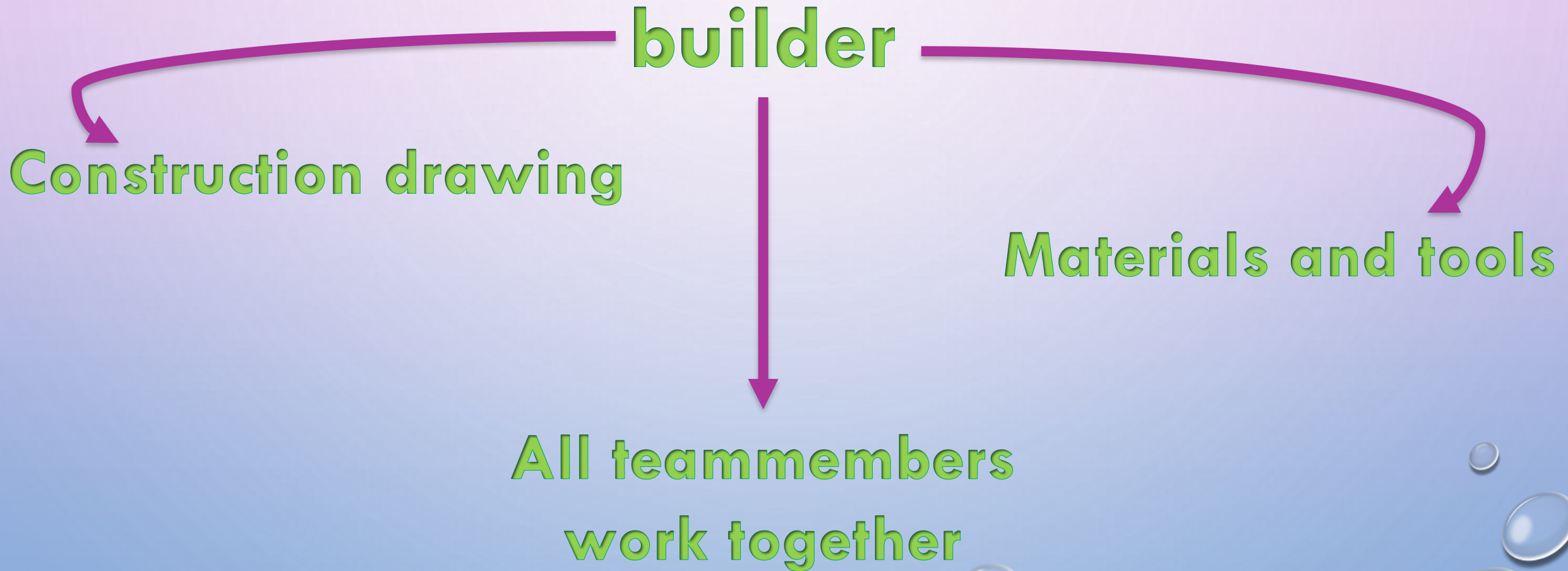
-1 TABLESPOON SUGAR

-1 TABLESPOON GLYCERIN *

-2 TABLESPOONS DISHWASHING DETERGENT

Step 4: making exhibit, poster and presentation

4 double science lessons

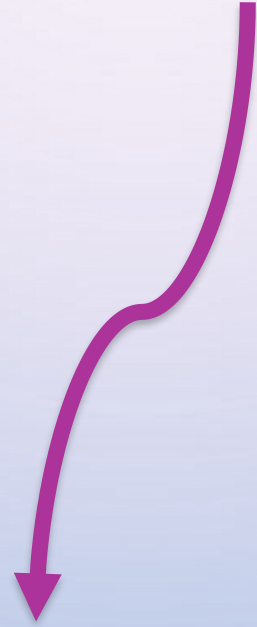


Step 4: making exhibit, poster and presentation

Set dresser



Looks and design,
images and photos



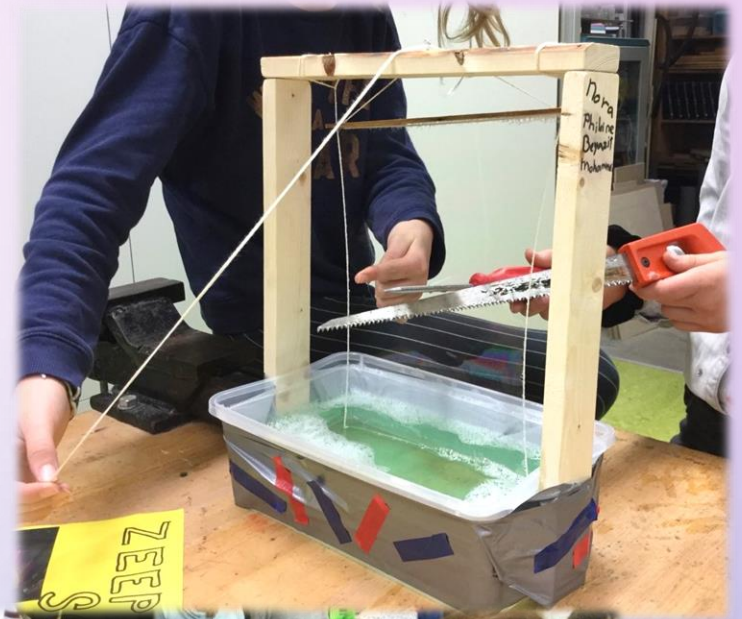
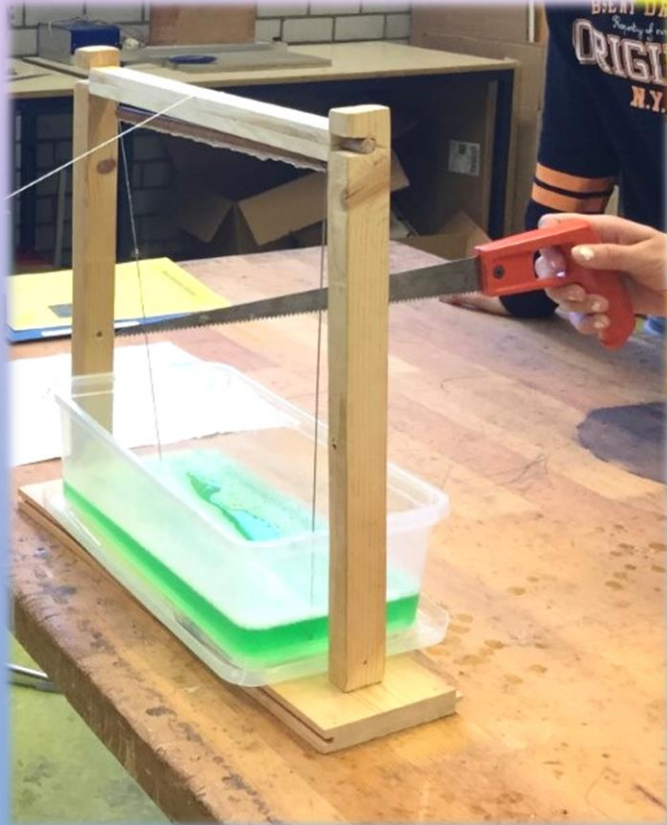
All teammembers
work together



End responsible

The results

Soap screen...



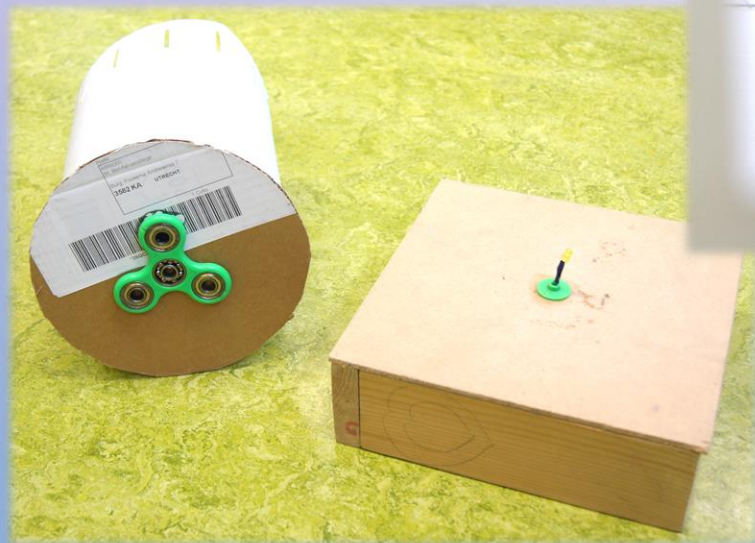
Bal blower



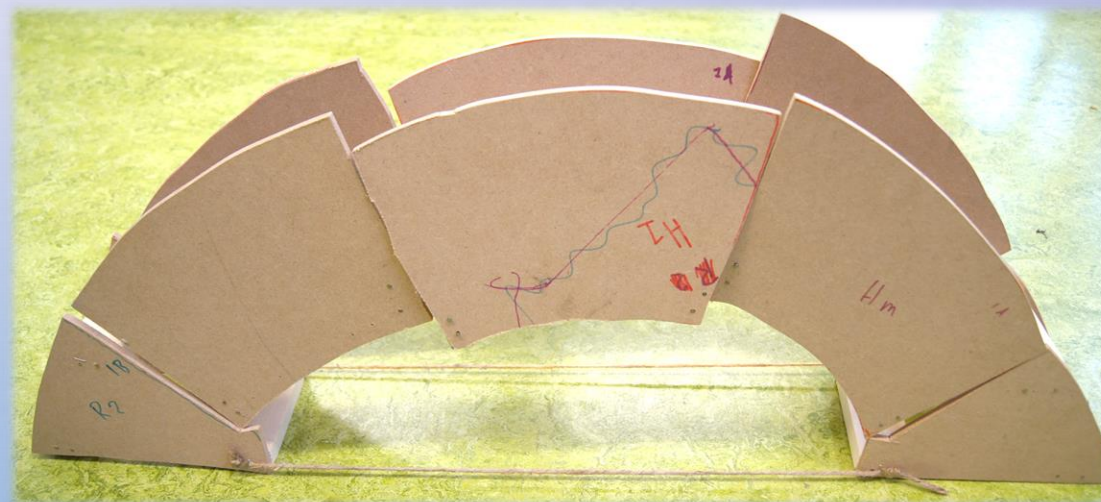
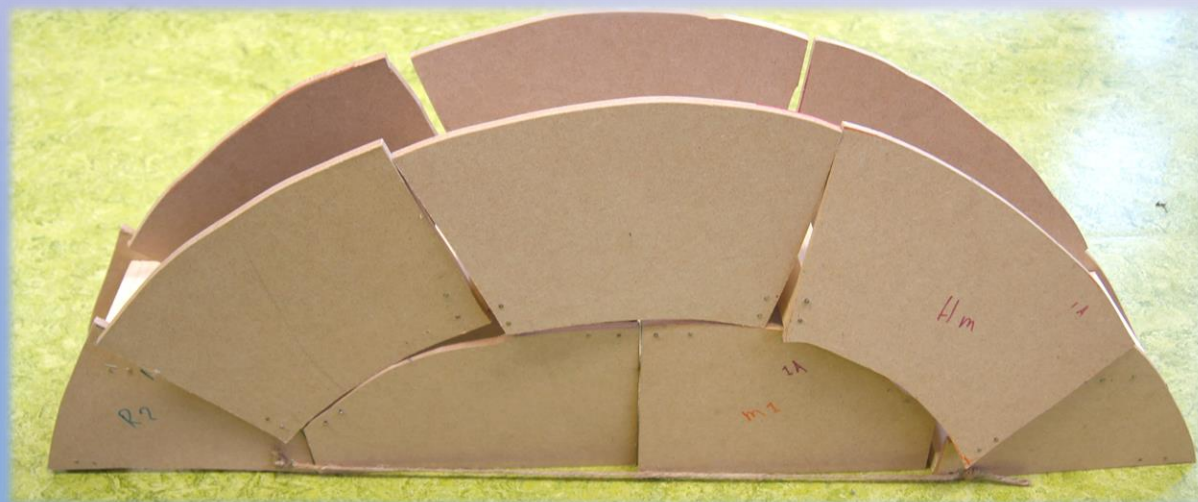
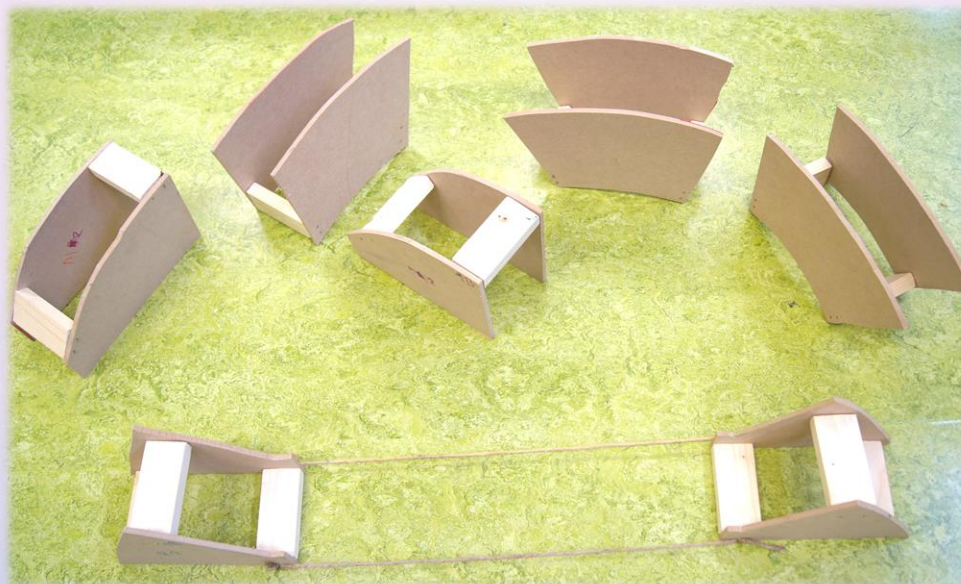
Rectangular
soap
bubbles



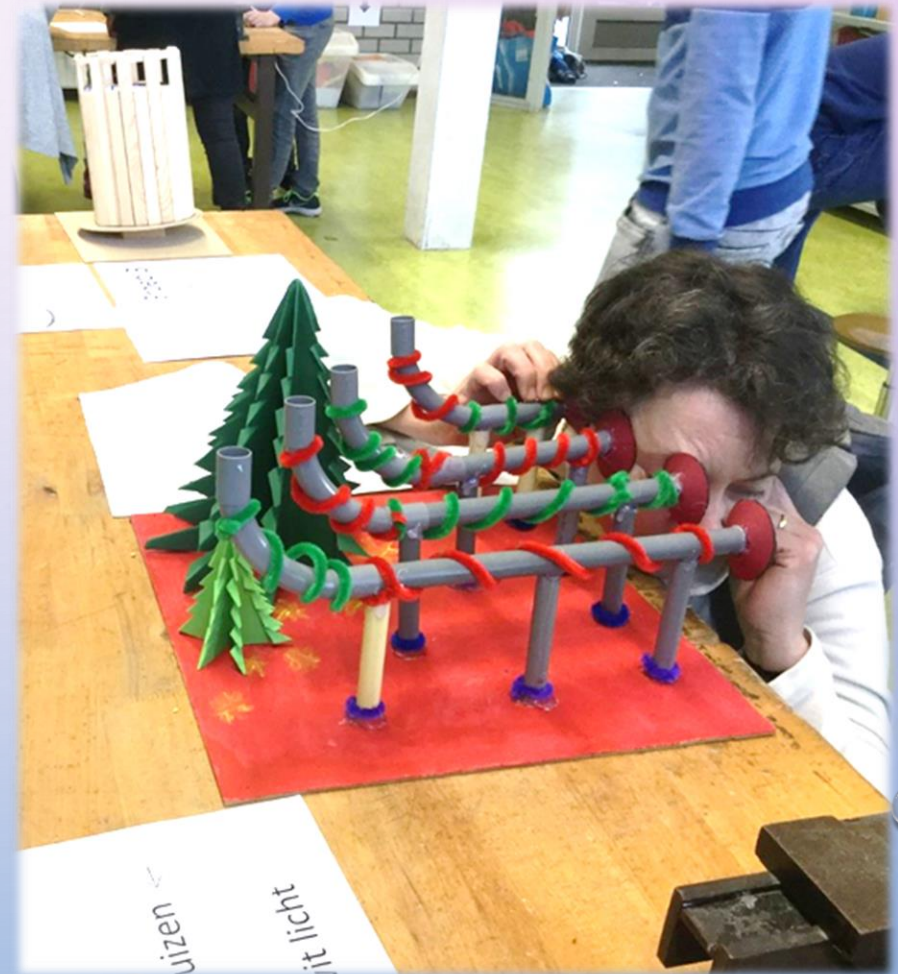
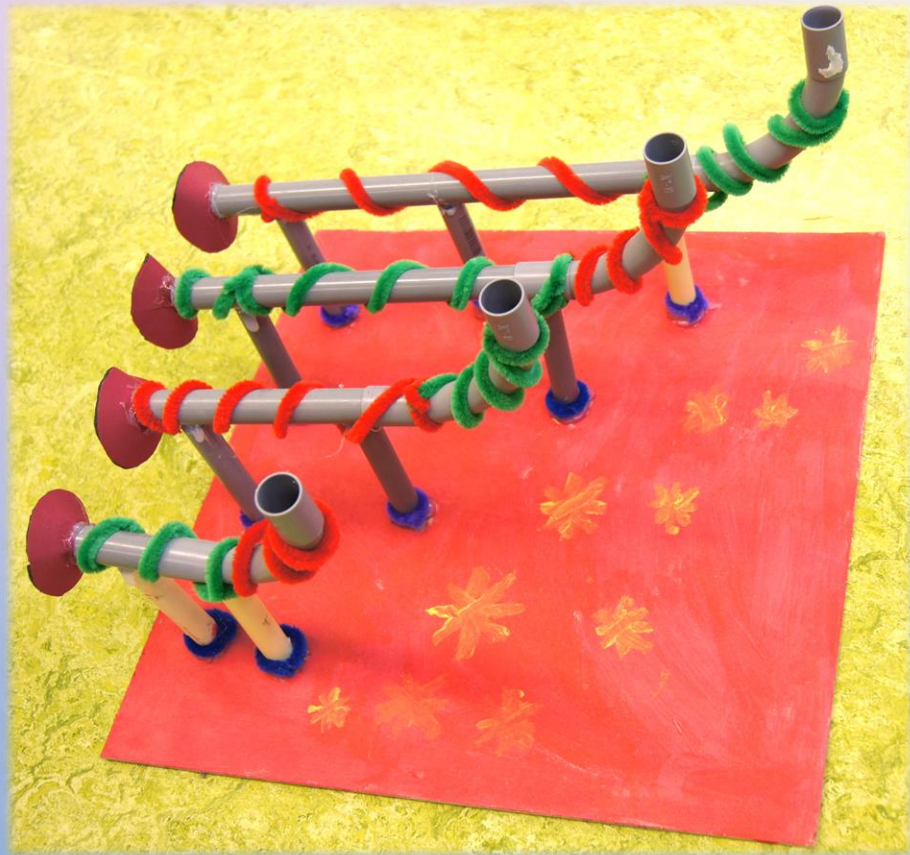
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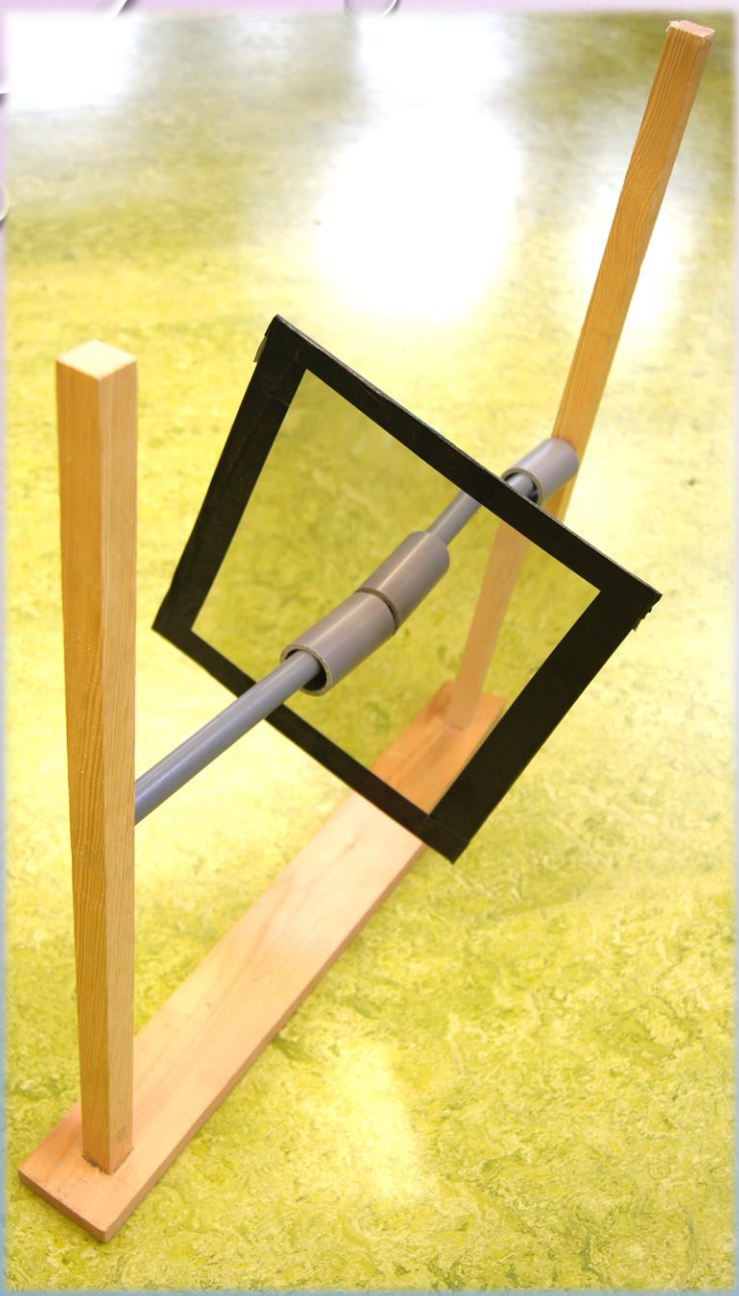


Arch bridge

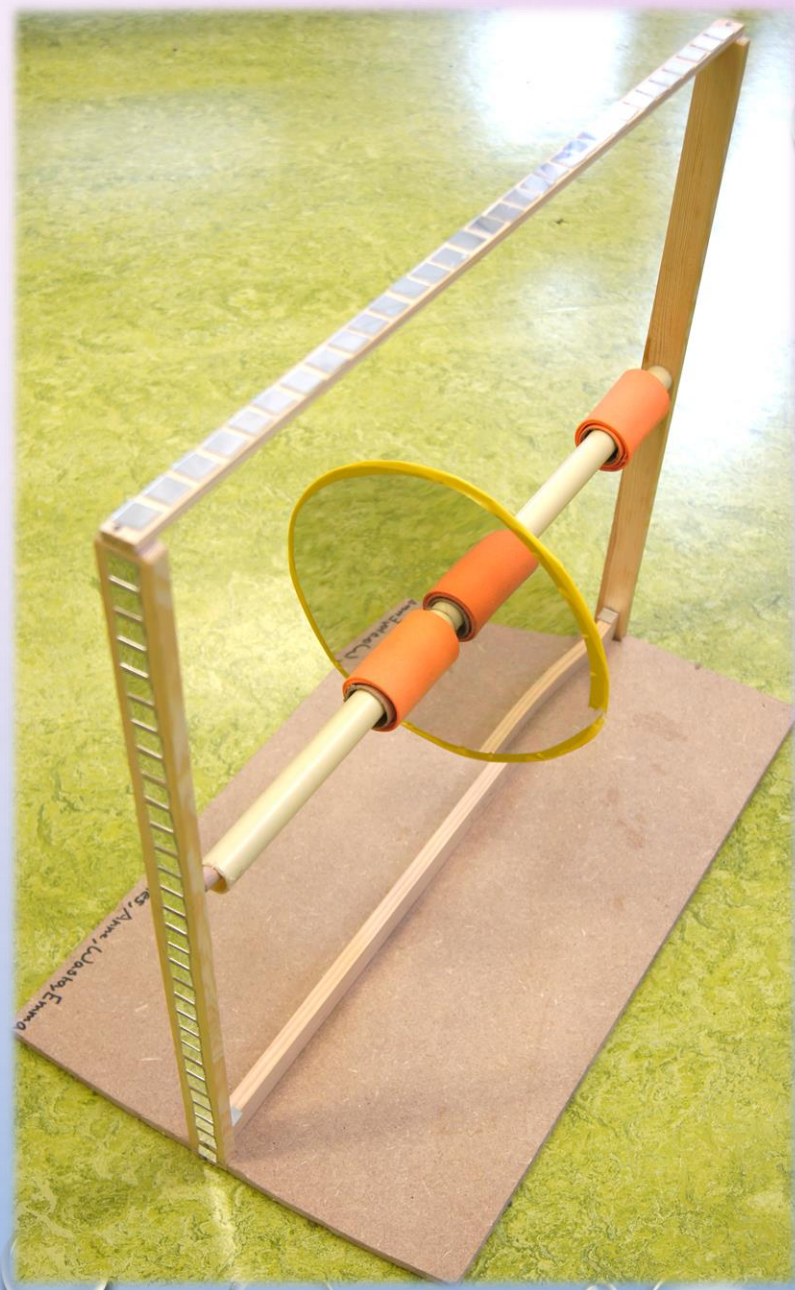


Listening tubes





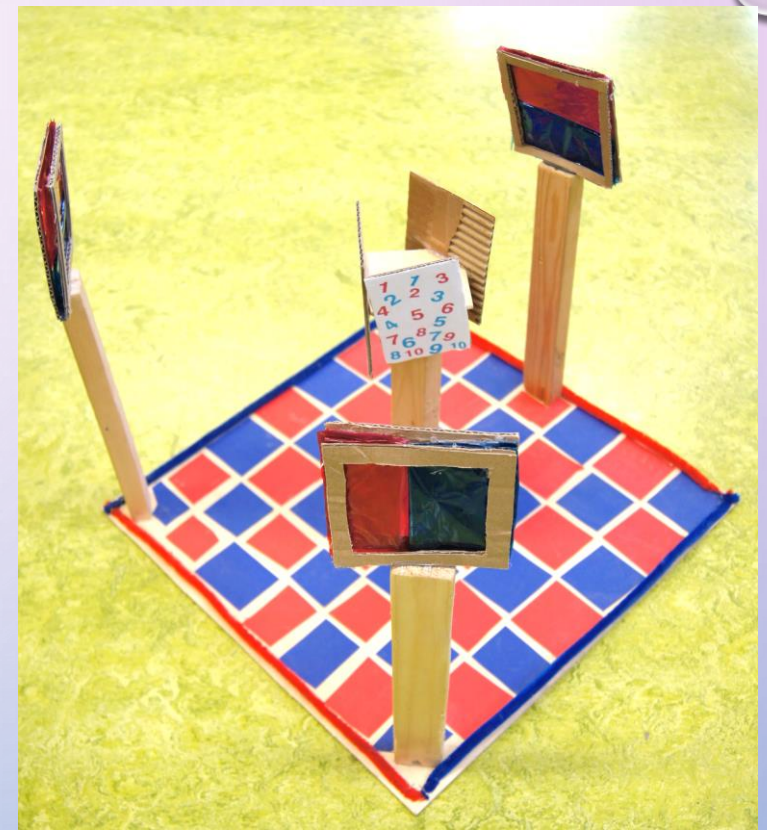
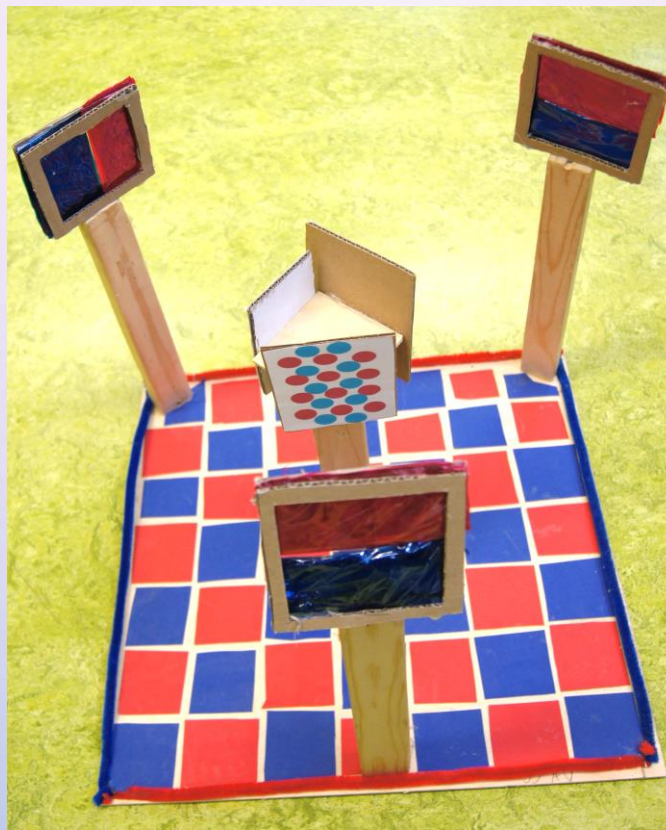
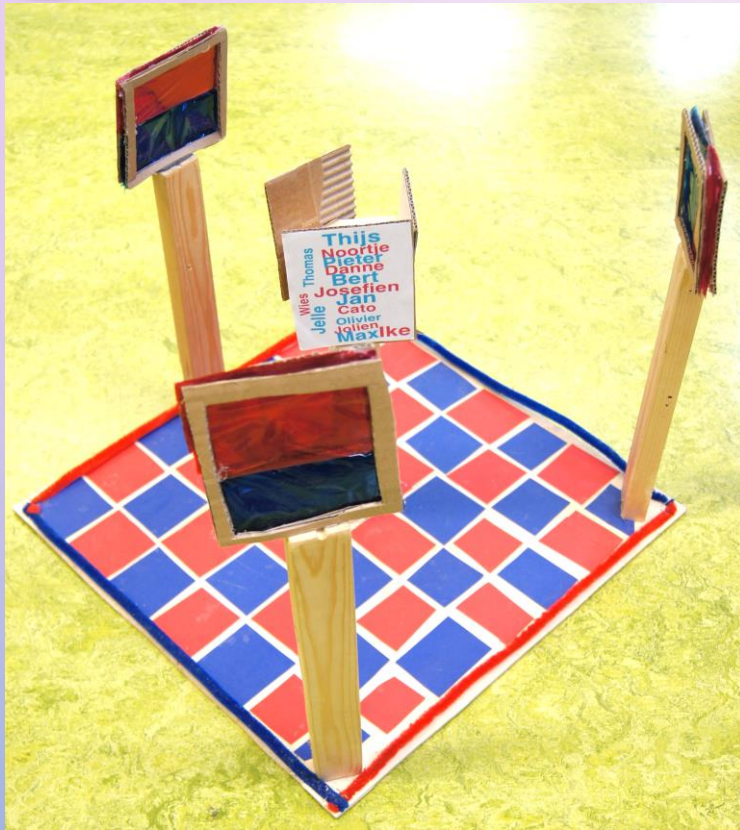
Brain confused
Brain confused



kaleidoscope



COLOR FILTERS





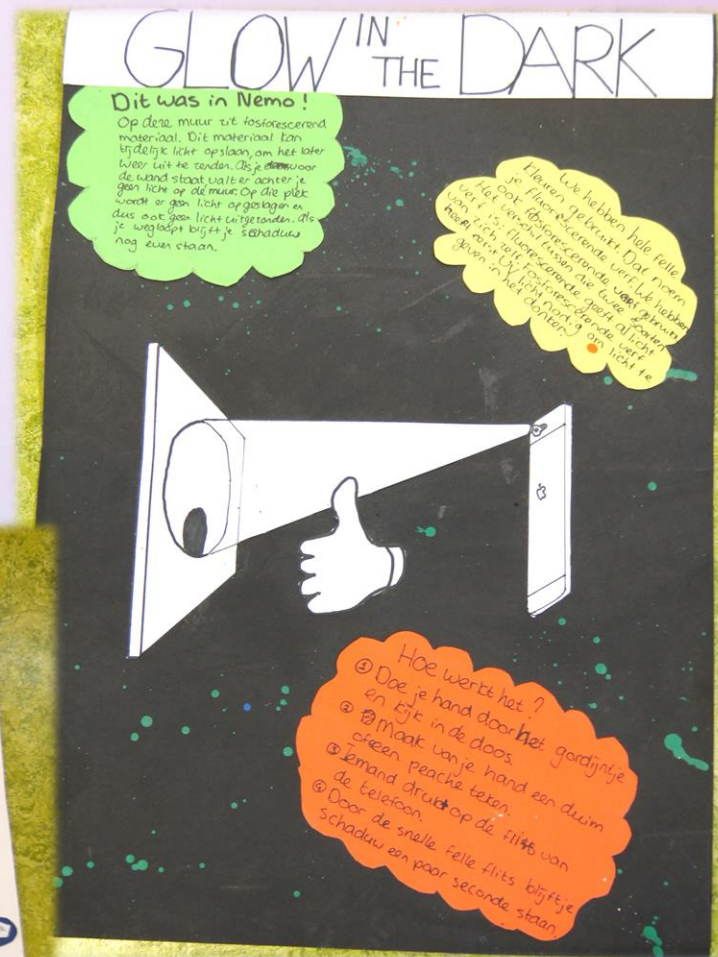
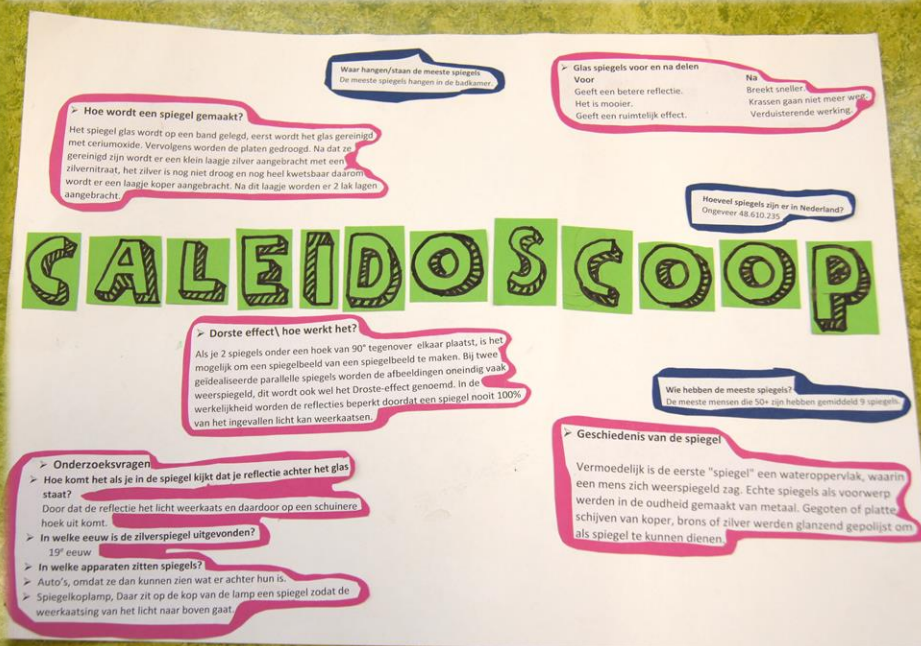
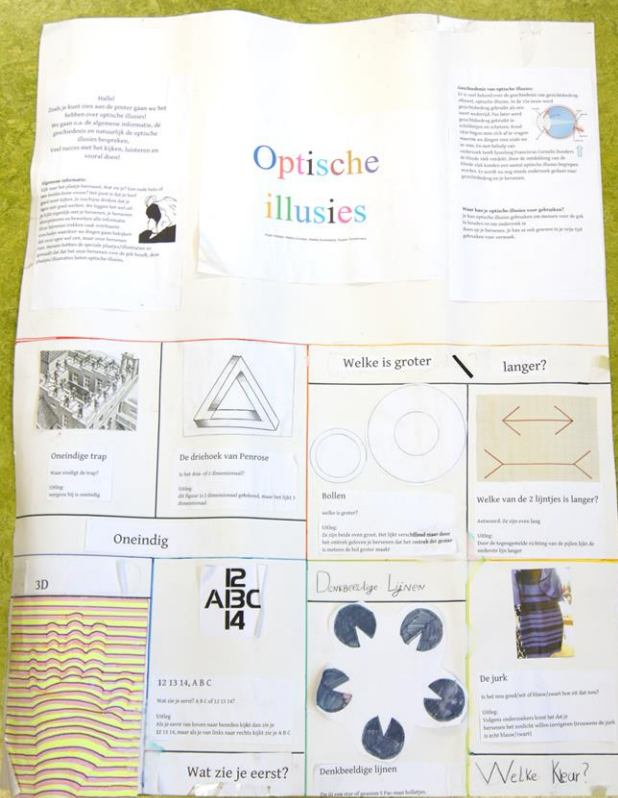
Strange wheels



Glow in the dark wall


Mirror drawing

Different posters





presentations



Several small
science centres
with 7 exhibits



One big
science centre
exposing all exhibits
from all classes.