



presents:

# CALENDAR

2013

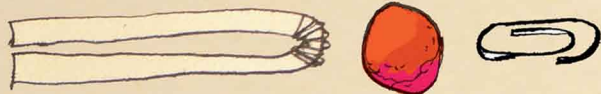
You will find here

12 proposals of interesting experiments in the field of:  
mathematics, physics, biology and chemistry,  
which can be seen during classes in the Centre  
and performed on your own at home.

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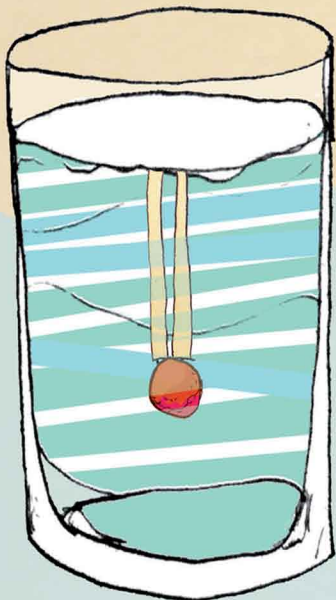
ministrations: Zofia Godlewska

compilation of experiments: Beata Bujak, Małgorzata Ociepa, Aleksandra Opaska, Krystyna Raczkowska-Tomczak

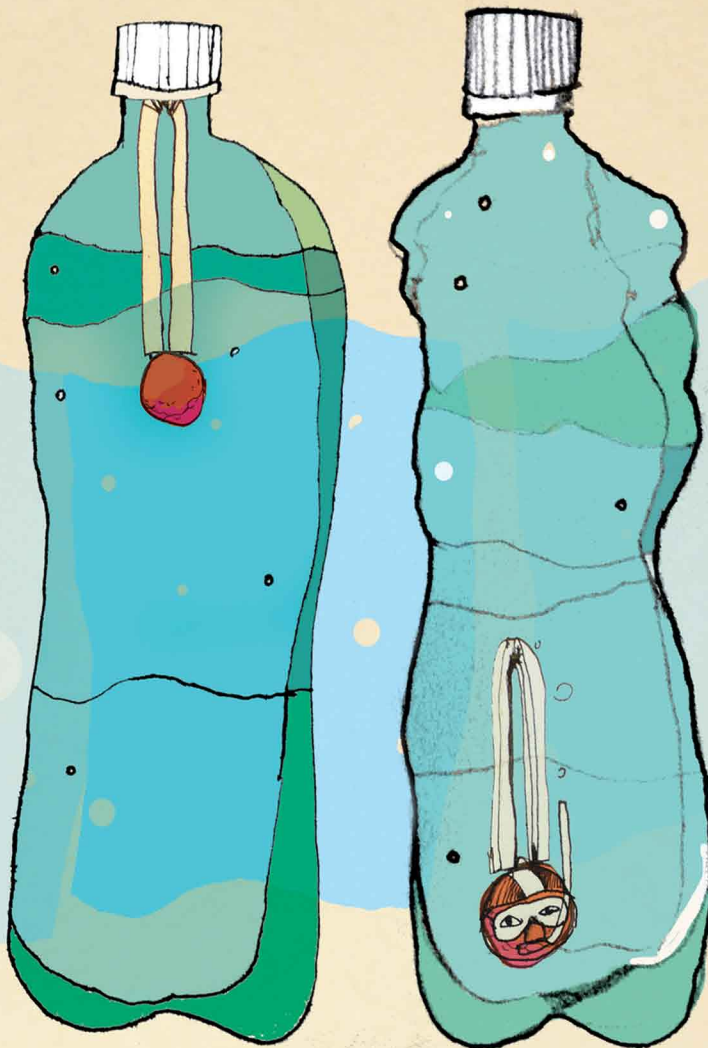


### DESCARTES' DIVER

We need to cut off 10cm from the straw, next fold it in half and spin its ends with the paper clip. After that, we hitch the plasticine to the paper clip, but remember not to seal the straw-holes.



The ballast should be selected in such a way, that the diver will stay and flow on the water surface. We can check it in the vessel filled with water. When the diver is appropriately ballasted we need to put it into a big, plastic and fully filled with water bottle. It should be twisted. When you are squeezing the bottle, the diver goes under the surface, and when you stop squeezing the diver resurface.



# 2013

# January

Monday    Tuesday    Wednesday    Thursday    Friday    Saturday    Sunday

1    2    3    4    5    6

7    8    9    10    11    12    13

14    15    16    17    18    19    20

21    22    23    24    25    26    27

28    29    30    31



**COLORFUL RAINBOWS ON A MILK**  
Pour some milk on a plate, just to cover the bottom of it.  
Make some dots of a colorant or diluted poster paint.  
First, you need to drown toothpick in dishwashing liquid,  
next using it touch the colorful drops on a milk.  
Colorful drops spread on a surface  
are making colorful motives.

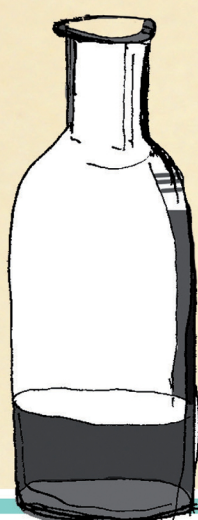
# 2013

# February

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Filling the balloon with carbon (IV) oxide

Fill a balloon with baking soda to half. Pour some vinegar into the bottle. Put a balloon on a neck of a bottle, holding the balloon tip baking soda into the bottle.



Magical food yeast

Pour some warm water into the thin neck bottle, add ¼ pocket of food yeast and 3 teaspoons of sugar. Stir all the ingredients precisely, next put the balloon on the bottleneck. After that put the bottle into a vessel with hot water and monitor for ten minutes what will happen.



# 2013

# March

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

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**RUBBER EGG**

Drench fresh chicken egg in a jar with vinegar for about 24 hours. Next, pour the vinegar away from the jar, rinse an egg under water. You can decorate the egg according to your own idea.

2013

April

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

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**XYLEM STRUCTURE**

Take the fresh stick of celery, cut a piece of it and put in a vessel full of water dyed in paint or pigment. After few hours take the stick out and dry it. On its cutting surface you will see clear drops in the places where dyed water reach xylem.

Into dyed water you can also put blooming stalk of white flowers (for about one day). Observe the color changes.

2013

May

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### DISAPPEARING HAT

Cover the left eye, and using the right one look at the fly.  
Move the card slowly towards your face,  
till the hat...disappear!



At a suitable distance, hat disappears,  
because its picture is located on retina in a place  
benefit of photoreceptors – it is called a blind spot.  
Repeat the experiment using your right eye.

# 2013

# June

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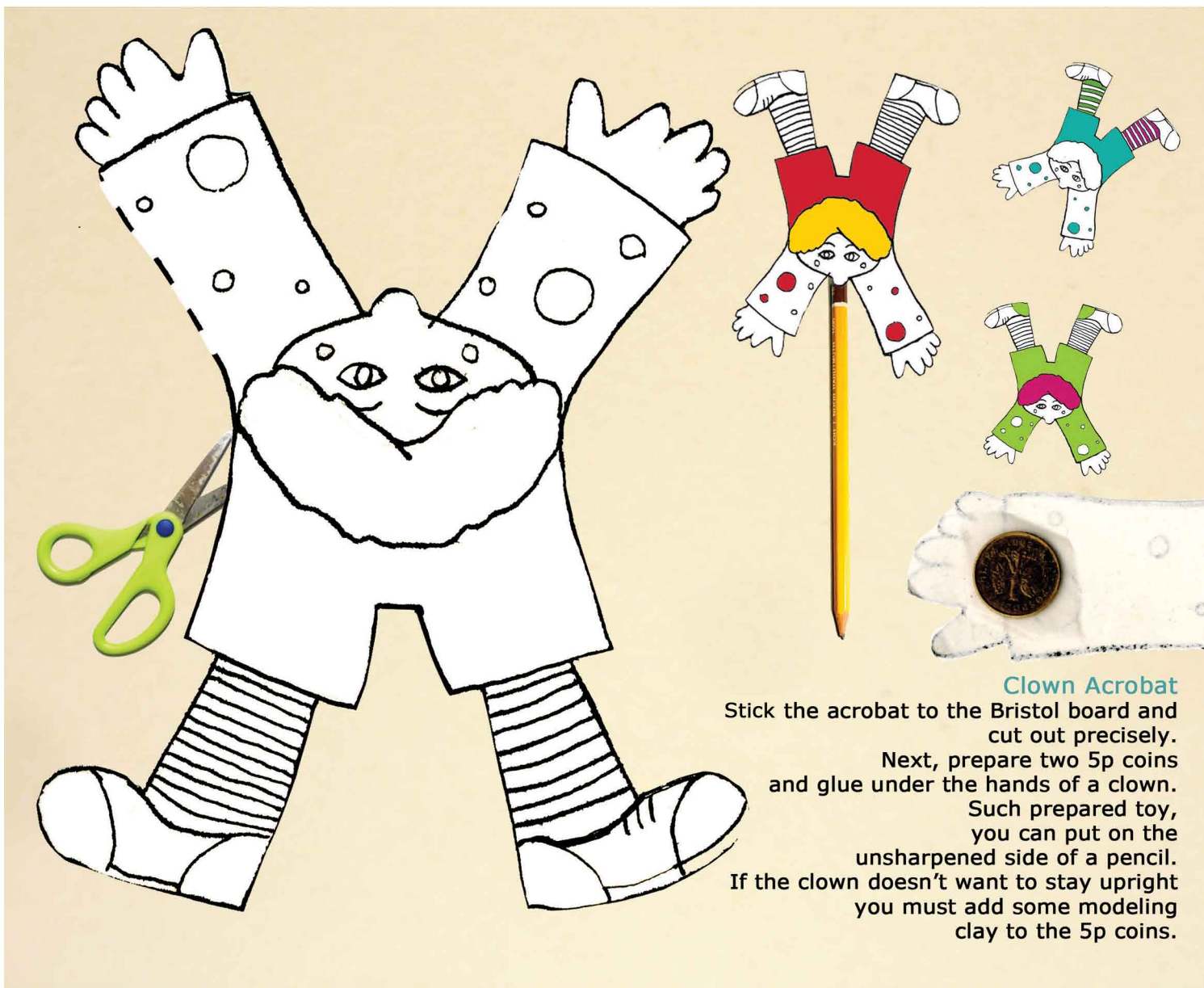
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### Clown Acrobat

Stick the acrobat to the Bristol board and cut out precisely.

Next, prepare two 5p coins and glue under the hands of a clown.

Such prepared toy, you can put on the unsharpened side of a pencil.

If the clown doesn't want to stay upright you must add some modeling clay to the 5p coins.

# 2013

# July

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

1 2 3 4 5 6 7

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22 23 24 25 26 27 28

29 30 31



Sulfur	S	Iron	Fe	Sodium	Na
Copper	Cu	Oxygen	O	Calcium	Ca
Carbon	C	Tin	Sn	Potassium	K
Silver	Ag	Magnesium	Mg	Gold	Au
Chlorine	Cl	Zinc	Zn	Lead	Pb
Nitrogen	N	Phosphorus	P	Hydrogen	H

Stick these cards to the cardboard and cut along the lines. Spread them out upside down. Invite someone to play. Turn away 2 cards at the same time. Someone, who finds both (pair) – the symbol of an element and the full name of it take the cards. Someone who collect more pairs wins.

# 2013

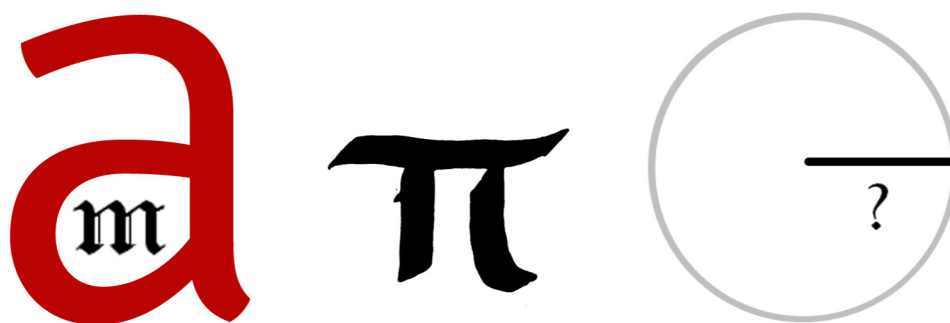
# August

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Solve the puzzle, scene from the film is a hint.



# 2013 September

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### Fun with the shadow

Stick A3 format card to the door of your wardrobe. Switch off the light in your room. Set yourself in profile using a white card as a background. Ask your friend to switch on the table lamp or an electric torch and light your face. There will be a shade of your face on the card. If somebody contour it, you will have your shadow portrait. If you want to have more portraits you need to use more sources of a light. When you light your face using two electric torches you will have two portraits.

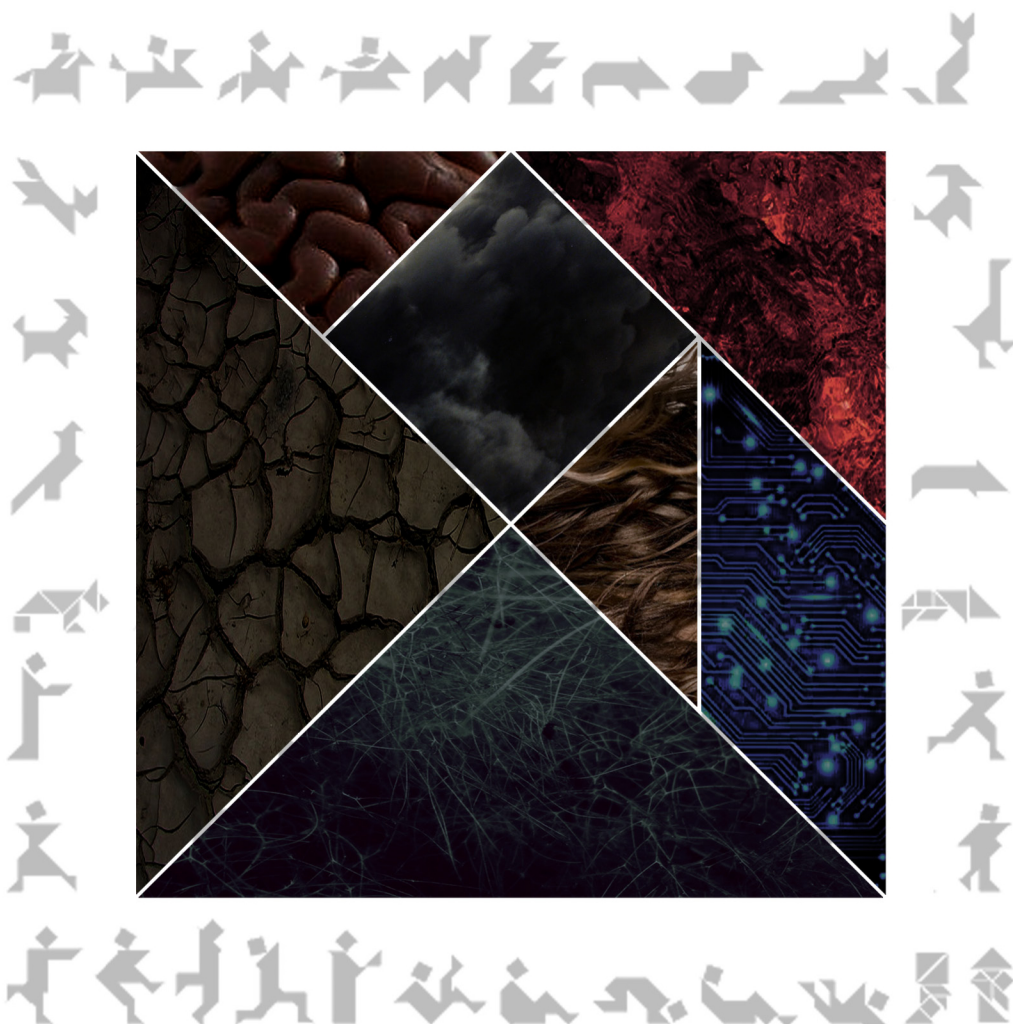


# 2013

# October

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

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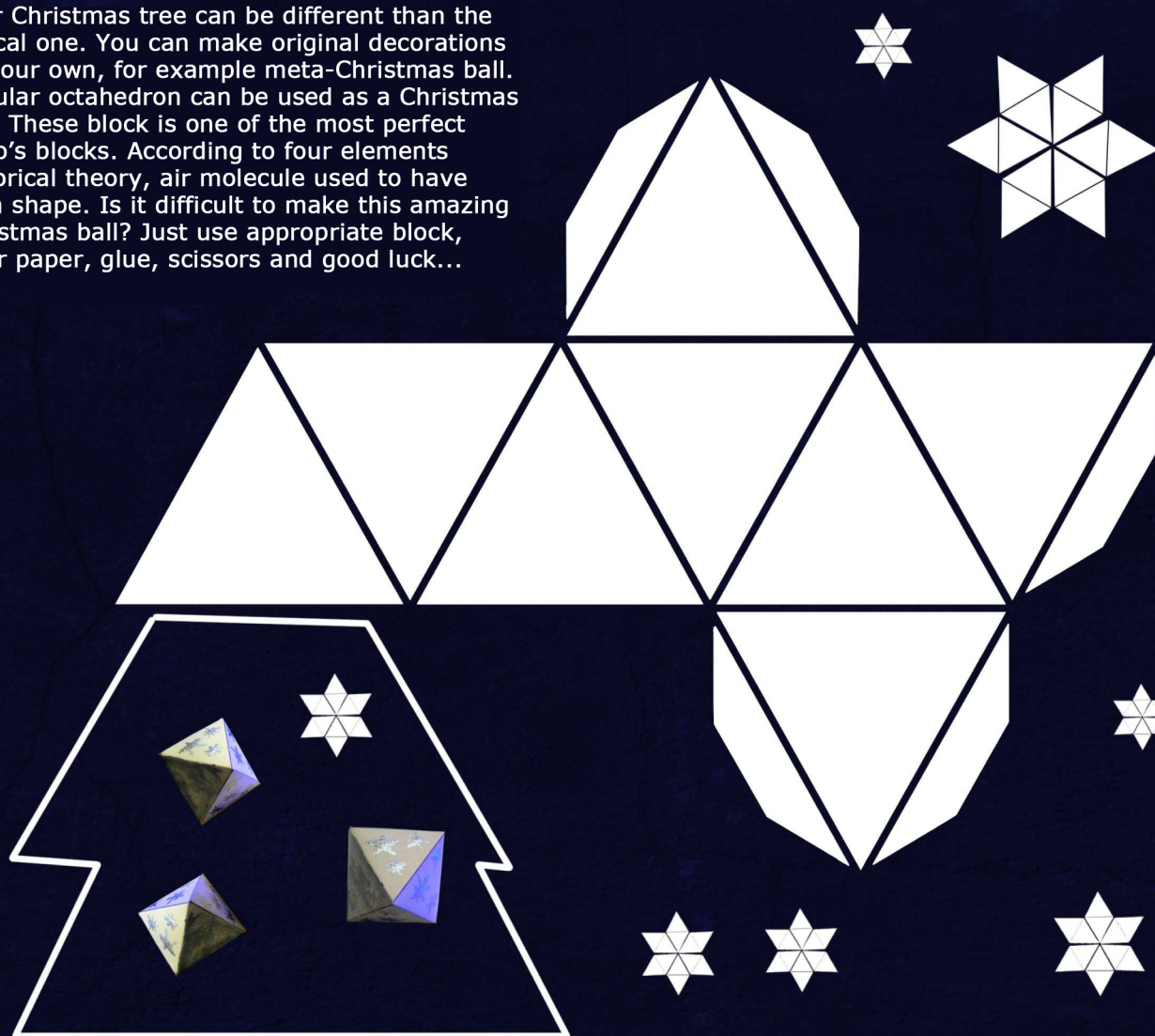
The TANGRAM – Chinese puzzle, which is known for about 3000 years. It is a square made from 7 pieces (tans). The aim of game is to make different geometric figures from an available pieces of a tangram, you need to use all of them (cut them from the template above). Parts must fit together, but they cannot overlap each other. Each piece of a tangram can be turned and rotated freely.

# 2013 November

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

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Your Christmas tree can be different than the typical one. You can make original decorations on your own, for example meta-Christmas ball. Regular octahedron can be used as a Christmas ball. These block is one of the most perfect Plato's blocks. According to four elements historical theory, air molecule used to have such shape. Is it difficult to make this amazing Christmas ball? Just use appropriate block, color paper, glue, scissors and good luck...



# 2013 December

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

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