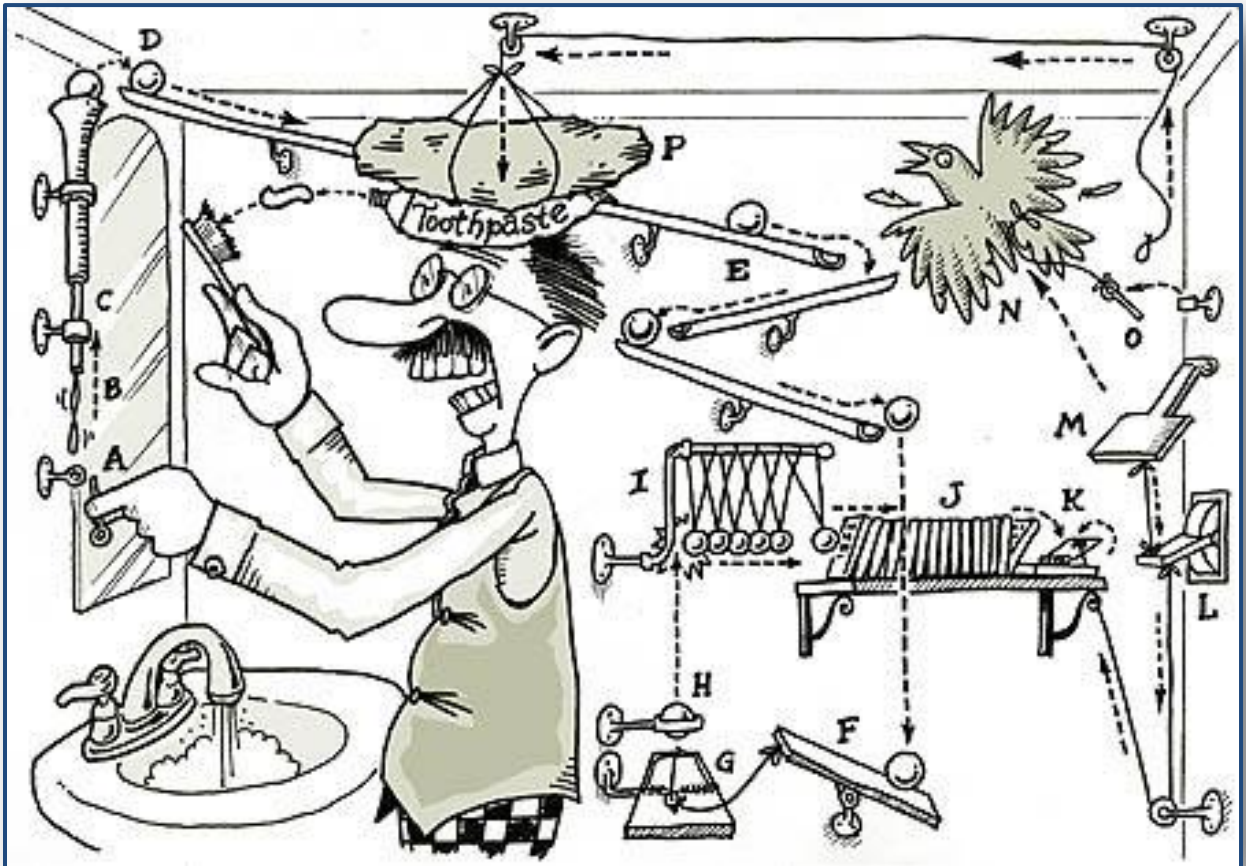


## The simplicity of a complex machine

### What's the deal with Rube Goldberg?

Most inventions try to make difficult tasks easier. Rube Goldberg discovered ways to make simple tasks amazingly difficult. One of his inventions used dozens of arms, wheels, gears, handles, cups, and rods that were moved by balls, canary cages, pails, boots, bathtubs, paddles, and animals, just to put toothpaste on the toothbrush.



A Rube Goldberg Machine is a device that has many simple machines connected together in a series to perform a simple task.

Choose one challenge. You have to design a machine (by drawing it on a paper or on the computer) which will do the task in, at least, 8 steps. Be ready to explain it in front of the class.

Examples of challenges:

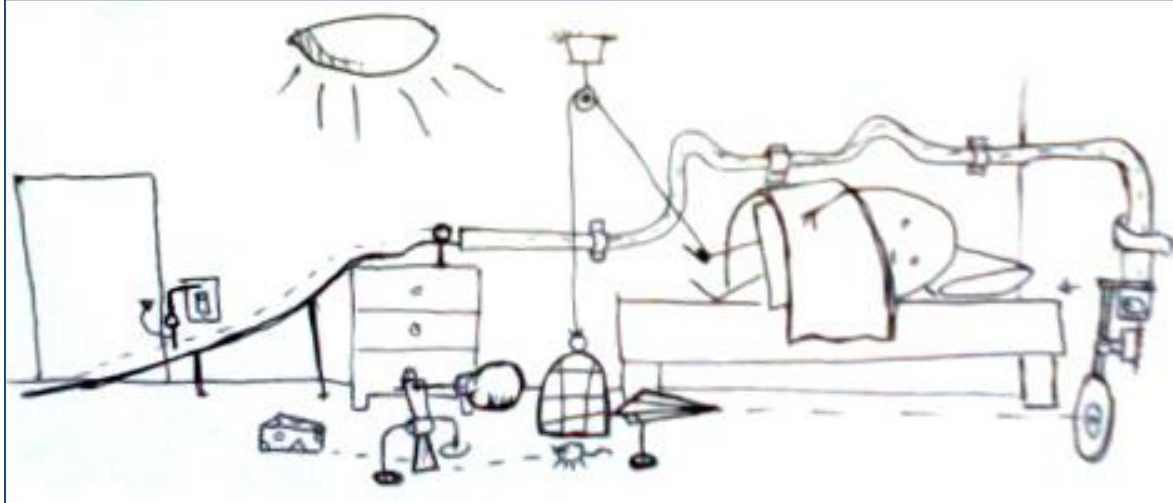
- Put toothpaste on a toothbrush.
- Water the plants in the evening

- Sort out your color pens in a specific order.
- Compress hamburger to facilitate eating.
- Wake you up at the end of the lesson.
- Play videogame in your place (so you can make your homework).

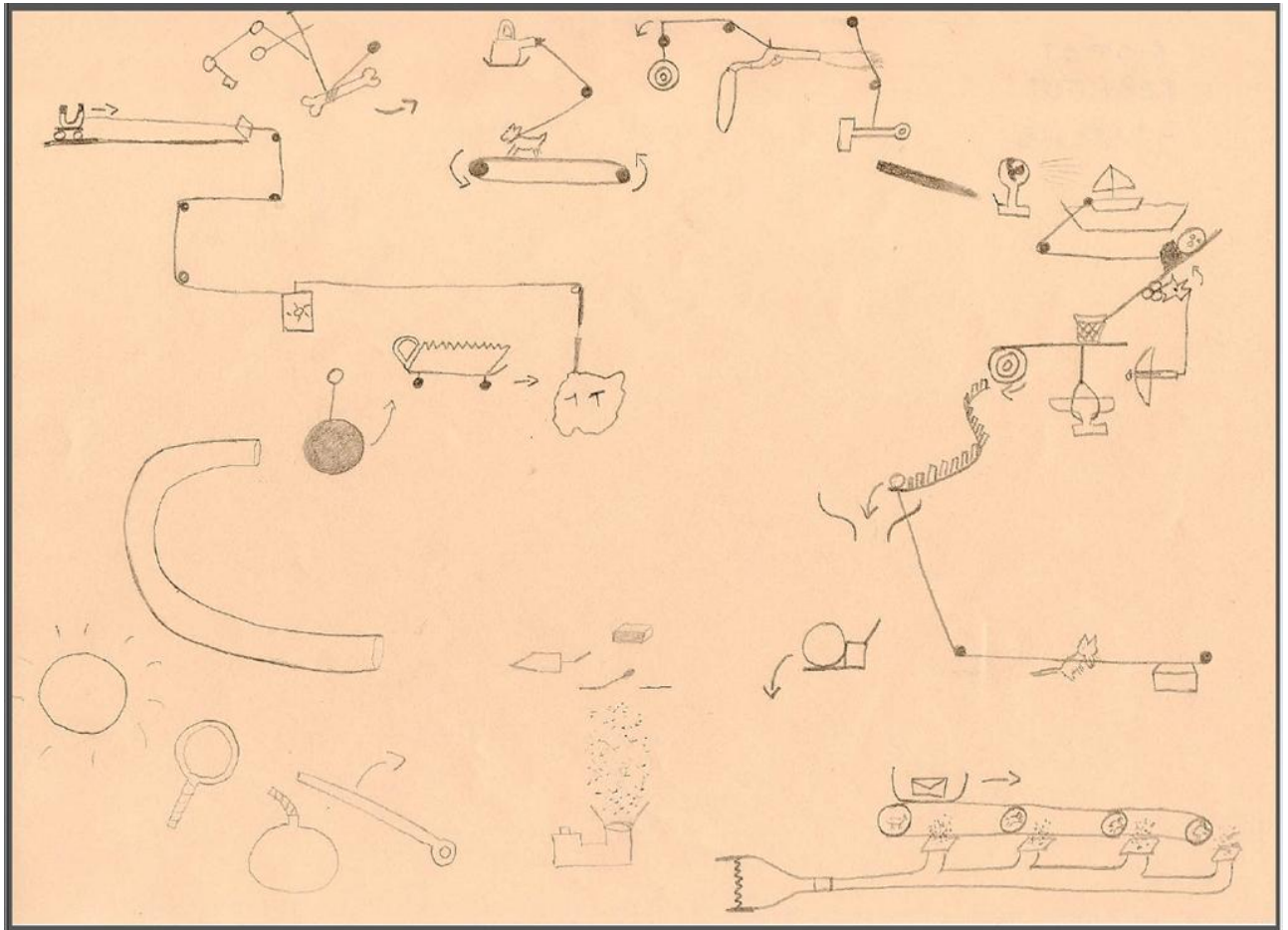
## Examples of drawings:



## Lights Out Machine



1. wiggle your foot to raise the mouse cage
2. hungry mouse runs for the cheese and passes through the spinner
3. spinner moves the boxing glove
4. boxing glove punches the mouse cage
5. mouse cage swings and bumps the paper airplane
6. paper airplane hits the target
7. target pivots the hamster's trap door open
8. hamster crawls through his track and bumps the ball at the end
9. ball rolls down the slide and hits the pivot arm
10. pivot arm rotates and turns off the light... goodnight

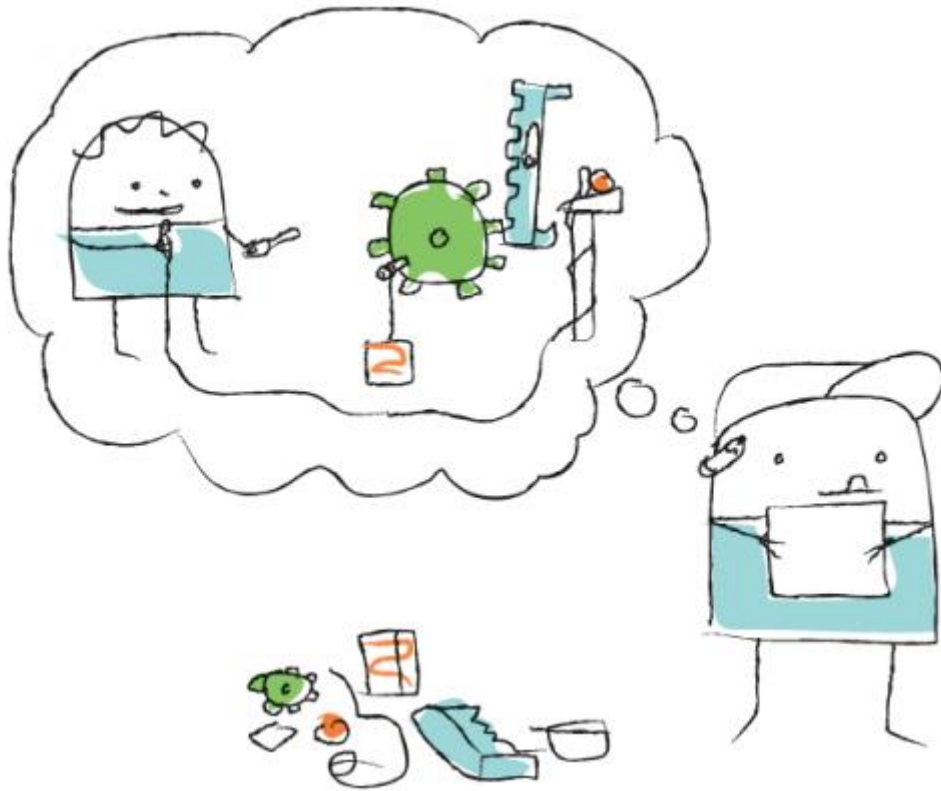


## List of Action Words

Sometimes even just words can spark ideas... Here is a list of some action words to get your brain churning. (Churning... that is an action word).

aim, bake, balance, barbecue (not recommended), barge, bat, billow, bite, blow, bob, bounce, break, brew, bulge, burst, catch, chase, chirp, clear, clutch, cook, crawl, crouch, dangle, drip, droop, dump, empty, erupt, explode, fish, float, flutter, fly, follow, gather, hang, jump, kick, lean, light, melt, mix, paddle, paint, pop, pour, pull, push, raise, rest, rock, roll, sail, scoot, shake, shoot, skate, slide, spew, spin, spray, stretch, swing, teeter-totter, throw, twirl, whistle, yank, zap...

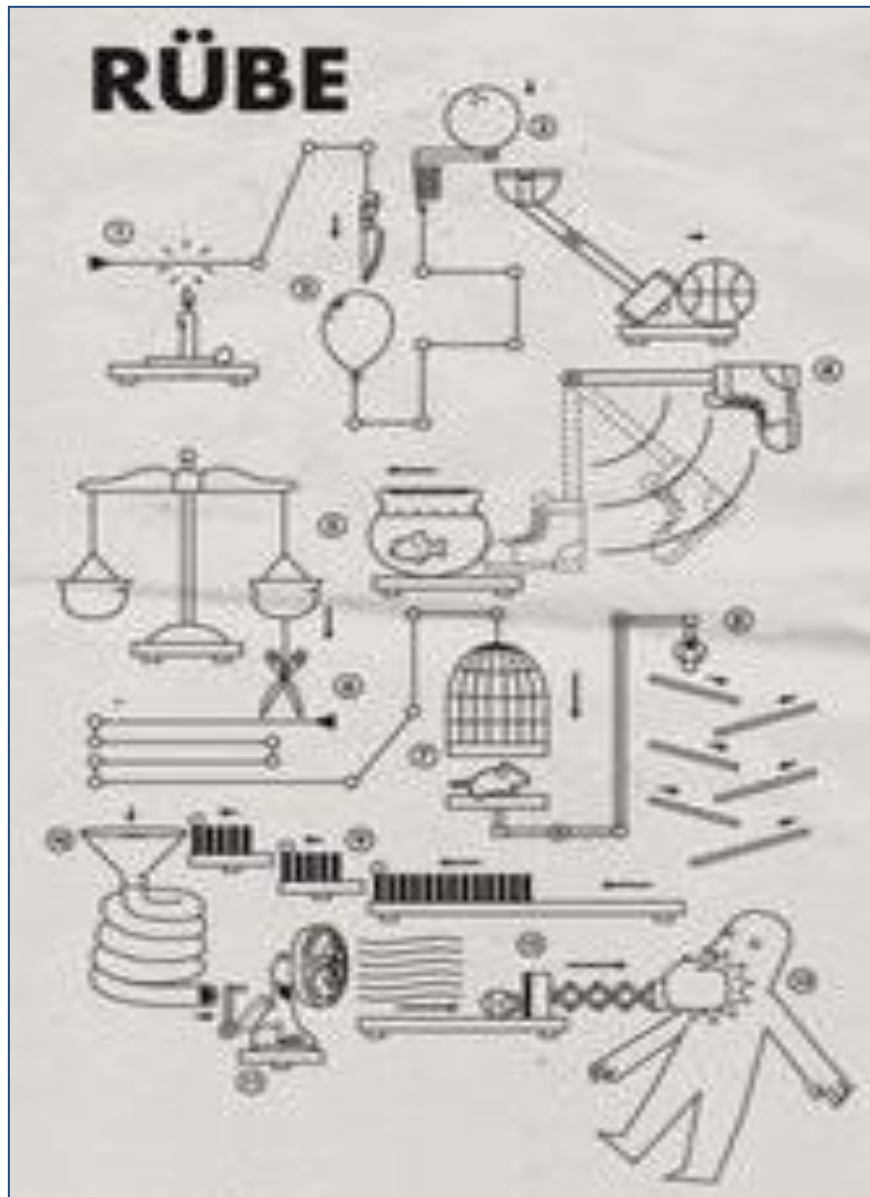
Good luck with your designs!

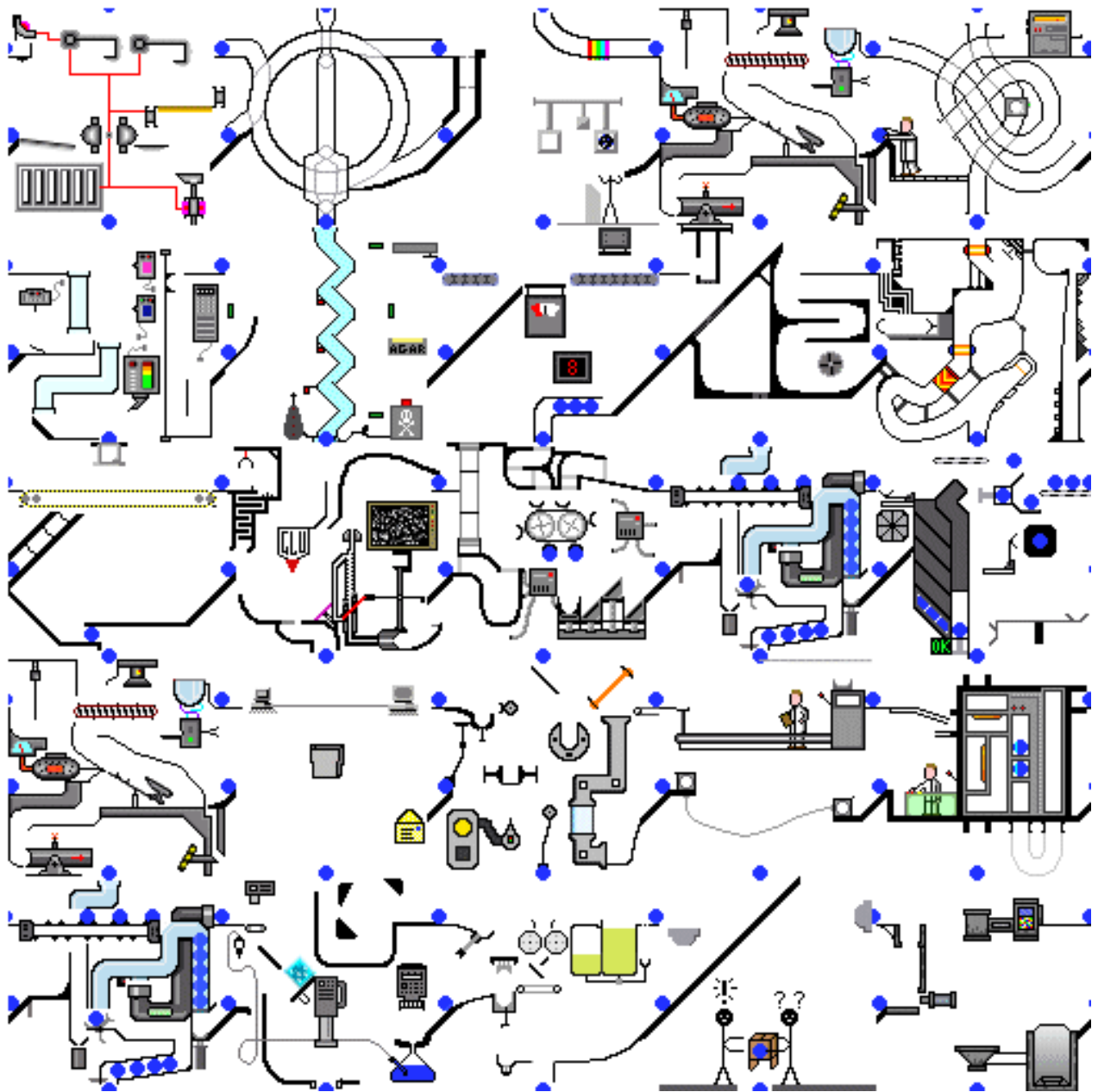


## Useful sentences

The water	flow move	-s	into the tank out of the tank
	go pass	-es	through the pipes to the outlet

The motor	causes	the shaft	to	move
	makes		move	
The open valve	lets	the water	flow out	
	allows		to	flow out
The closed valve	prevents	the water	from	flowing out
	stops			





<http://knowyourmeme.com/memes/rube-goldberg-machine>