Dogbot

Design and technology
- Designing mechanical toys
- Levers and linkages
- Mechanical programming of actions
- Pulleys and gearing
- Using and combining components

Science
- Force and energy
- Friction
- Scientific investigation

Vocabulary
- Cams
- Gears
- Levers
- Linkages
- Pivots
- Sequencing

Other materials required
- Crayons
- Decorative materials: wool, foil, card, paper, etc.
- Scissors
- Sticky tape

Connect

Zog is very bored. He dreams of a special friend that is always happy, wide awake and with whom he can share a bone. Jack and Jill have an idea.

How can we make an exciting friend for Zog to play with?
**Let's find out.**

Construct

Build Dogbot
(all of book 14A and book 14B to page 19, step 27).

There are many moving parts on Dogbot, but only one motor. Turn on Dogbot by pushing backwards on the battery switch. If the motor is not turning freely, you need to check several parts of the Dogbot:

- The lever on the upper jaw should move up and down
- The cams should rotate freely, moving the eyes attached to the axles up and down
- The lever on the tail should wag up and down

Levers

Pivot

Cam

Pulley wheel
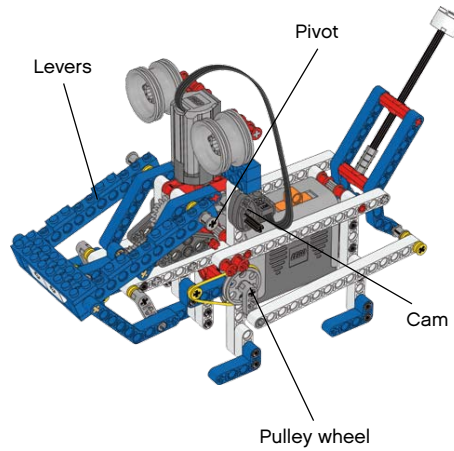
Did you know?
The jaw and tail movements both feature compound levers with several pivots.
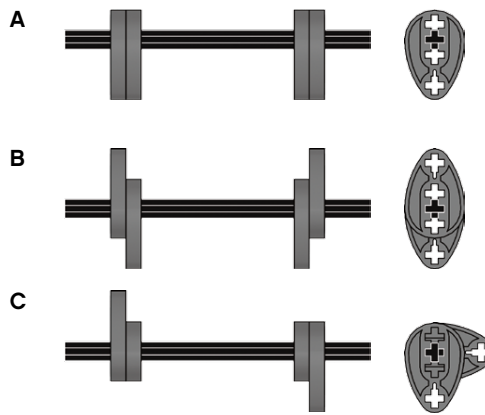

LEGO education

14A
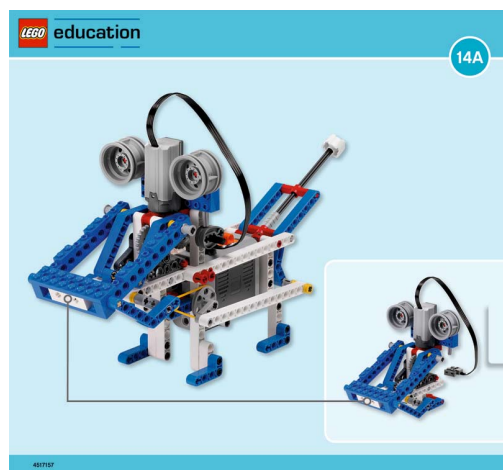
Contemplate

Is Dogbot wide awake?

When Dogbot is wide awake its eyes move about a lot!

Which cam setting will produce a Sleepy, Awake and Wide Awake Dogbot?

Predict first which eye action cam setting A will produce. Then test your prediction. Next, follow the same procedure for cam settings B and C.
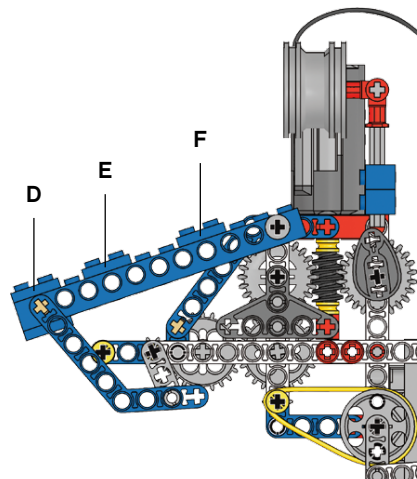
A

B

C

How wide can Dogbot's jaws open?

By changing the peg position you can change the extent to which Dogbot can open his jaws.

First predict how wide peg position D will make Dogbot's jaws open. Then test your prediction. Next, follow the same procedure for peg positions E and F.

F

E

D

Continue

Can Dogbot be happier?

Dogbot wags its tail when it's happy.
The faster the wag, the happier it is.

First predict how happy Dogbot is using pulley
setting A. Then test your prediction.
Next, follow the same procedure with pulley
settings B and C.

A

B

C