

3. Muturi meraviljużi...

bħala parti mill-proġett komunitarju

Għaddi - Mixja esperjenzali madwar il-Kalkara

ma'
VICTOR



Kont taf?

L-**elettriku** jista' joħloq il-**manjetizmu**.

U l-**manjetizmu** jista' joħloq l-**elettriku**!

Niffukaw fuq STEAM

Ix-**Xjentisti** skoprew li meta tghaddi l-**elettriku** minn ġo wajer, dan joħloq **kamp manjetiku**. U jekk ikun hemm xi kalamita fil-viċin, il-kamp manjetiku jista' jimbotta l-kalamita. Imbagħad l-**Inġiniera** sabu mezz ta' kif jużaw dik ix-Xjenza biex jibnu mutur li jdawwar xaft. Ħafna drabi nużaw muturi biex inħaddmu karożzi u affarijiet oħra li rriduhom jimxu jew jiċċaqalqu, bħat-tanbur ġewwa l-magna tal-ħasil.

Victor hu espert fil-**winding ta' ġewwa l-muturi**, fejn idawwar biċċa wajer twila madwar ċilindru.

Ejja nkunu kreattivi!

Ejja nagħmlu ftit winding, imbagħad ejja nużaw mutur u robot biex noħolqu ftit arti.

Riżorsi - 1. Windings

Wajer irqiq li għandu insulation fuqu - Ċilindru (eż. roll tat-toilet paper)

Attività - 1. Windings

Il-winding huwa parti importanti ħafna minn mutur. Ipprova! Kemm int kapaċi tagħmel dawriet tal-wajer puliti? Iktar kemm iddawwar pulit, iktar jaħdem tajjeb il-mutur!

1. Dawwar il-wajer maċ-ċilindru b'mod pulit.
2. Meta tasal fl-aħħar taċ-ċilindru, kompli dawwar fid-direzzjoni l-oħra.
3. Komplu sejjer hekk sakemm ikollok xi ftit saffi fuq xulxin.

Aqleb il-pagna għal attività oħra!

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Riżorsi - 2. Scribblebots

Kaxxa żgħira tal-kartun jew tazza tal-plastik - Mutur żgħir - Glue stick (tal-hot glue gun) - 2 batteriji AA u battery holder - Tape b'saħħtu (eż. sticky tape jew duct tape) - Masking tape - Felt pens - Karta

Attività - 2. Scribblebots

Scribblebots huma robots li jużaw mutur biex joħolqu moviment u arti!

Meta nwaħħlu piż mal-mutur dan jibda jivvibra u r-robot jibda jimxi. Dan huwa simili għal meta l-ħwejjeġ ġewwa l-magna tal-ħasil jkunu kollha fuq naħa waħda u l-magna tibda tiċċaqlaq, jew meta l-mowbajls jibdew jivvibraw.

1. Aqta' l-glue stick biex ikollok tul ta' xi 2cm.
2. Xi nofs ċentimetru mill-ġenb tal-glue stick, uża xi haġa bil-ponta biex tagħmel toqba rqiqa, imbagħad daħħal ix-xaft tal-mutur fit-toqba.
3. Qabbad il-battery holder mal-mutur, u daħħal il-batteriji f'posthom.
4. Uża t-tape b'saħħtu biex twaħħal il-mutur u l-battery holder mal-kaxxa jew it-tazza li għandek.
5. Uża l-masking tape biex twaħħal il-felt pens mal-kaxxa jew it-tazza.
6. Neħhi t-tappijiet tal-felt pens, ixgħel il-mutur, u ara l-iScribblebot jivvibra fuq il-karta!
7. Mexxi l-markers għal pożizzjonijiet differenti u ara kif jinbidel il-moviment tal-iScribblebot.

3. Marvellous motors...

as part of the community project

Għaddi - An experiential walk through Kalkara

With
VICTOR



Did you know?

Electricity can create **magnetism**.

And **magnetism** can create **electricity**!

All about STEAM

Scientists discovered that when you pass **electricity** through a wire, it creates a **magnetic field**. And if a magnet is nearby, it can push on the magnet. Then **Engineers** figured out how to take that Science and use it to build a motor that spins a shaft. We often use motors to power cars and other things that we want to move, like the drum inside a washing machine.

Victor is an expert in the **winding inside motors**, where he wraps a long piece of wire very neatly around a cylinder.

Let's get creative!

Let's make a winding, and then let's use a motor and a robot to create some art!

Resources - 1. Windings

Thin wire that has an insulated coating - A cylinder (eg. toilet-paper roll)

Activity - 1. Windings

The winding is an important part of a motor. Have a go! How neatly can you lay down your wire? The neater it is, the better the motor will work!

1. Wind the wire neatly along the cylinder.
2. When you reach the end, wind back again in the other direction.
3. Keep going until you have a few layers.

Turn the page for another activity!

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Let's get creative!

Resources - 2. Scribblebots

Cardboard box or plastic cup - Small motor - Glue stick (for a hot glue gun) - 2 AA batteries and a battery holder - Strong tape (eg. sticky tape or duct tape) - Masking tape - Felt pens - Paper

Activity - 2. Scribblebots

Scribblebots are robots that use motors to create movement and art! We attach a weight to the motor to make it vibrate and move the robot. This is similar to when the clothes inside our washing machine are all on one side and it starts shaking, or when our mobile phones vibrate.

1. Cut the glue stick to be about 2cm long.
2. About half a cm from one end of the glue stick, use something long and pointed to make a hole, then push the motor shaft through the hole.
3. Connect the battery holder to the motor, and put in the batteries.
4. Attach the motor and the battery holder to your box or cup using strong tape.
5. Use masking tape to attach some felt pens to your box or cup.
6. Take the lids off the markers, switch on the motor, and watch your scribblebot vibrate across the paper!
7. Move the markers to different positions and see how that changes the movement of your scribblebot.