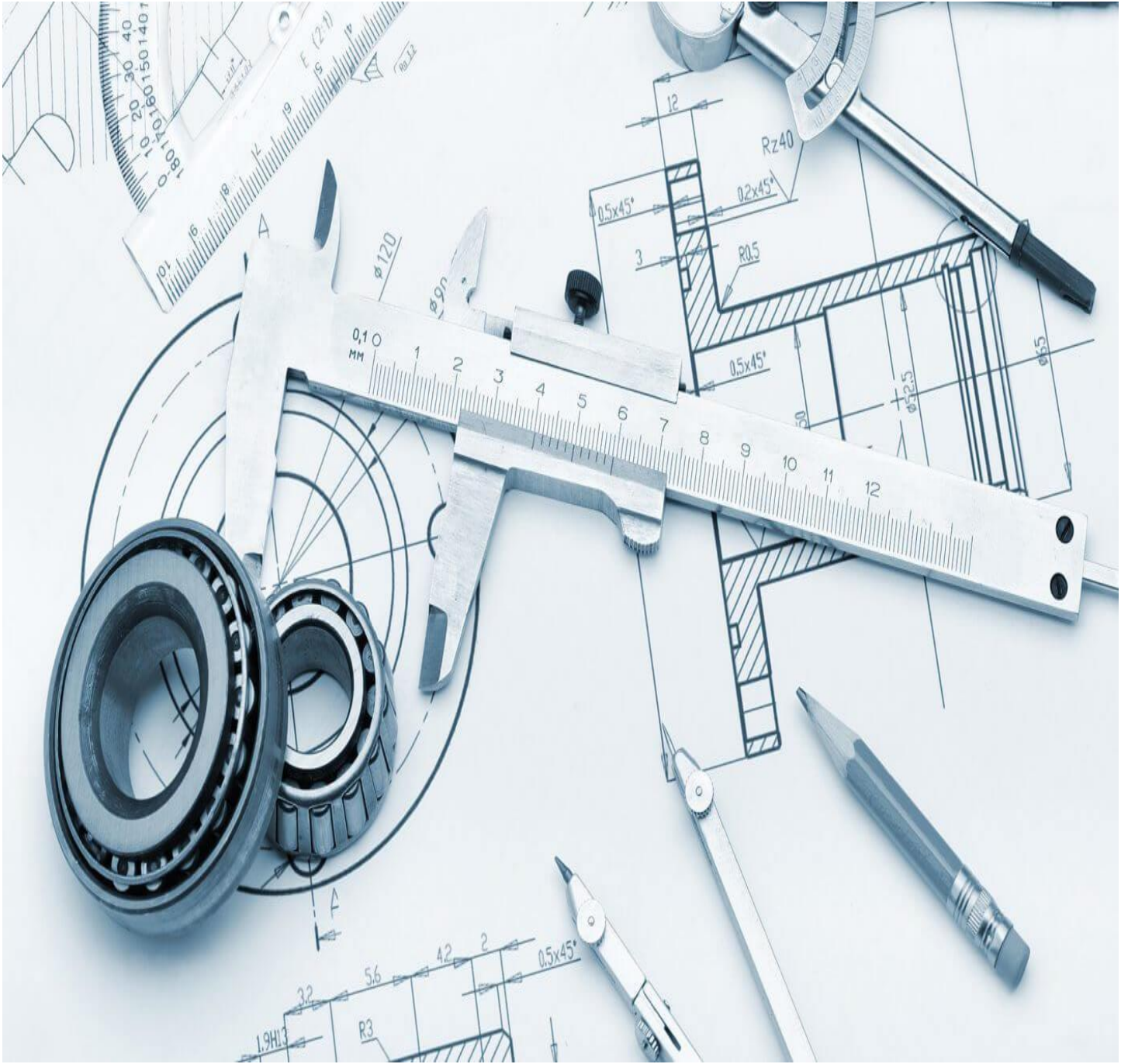


Activity Book



Name & Surname: _____

Gr 7: ____

Task 1

1) Copy the following table into your book and complete it.

Name of product	What it does	How it meets a need	Type of technology
Photocopier			
Refrigerator			
E-mail			
Pencil case			
School desk			

Task 2

1) Name the 5 processes of the design process in the correct order.

2) In your own words explain each stage of the design process.

3) Match the explanations in Column B with the correct aspect in Column A by writing the correct letter next to the number in column C. Only write the number and letter in your book.

Column A	Column B	Column C
Ex. Money	Z) The root of all evil.	Ex) Z
1) People	A) What impact does the product have on the environment; where and under what conditions is it used?	1)
2) Purpose	B) Who is the product for: the age/gender of the people, their culture/religion?	2)
3) Safety	C) What is the manufacturing/purchase price? Can the product be made more cheaply?	3)
4) Environment	D) What need/want/problem is the product addressing?	4)
5) Cost	E) Is the product safe to use; what can be done to make it safer?	5)

Task 3

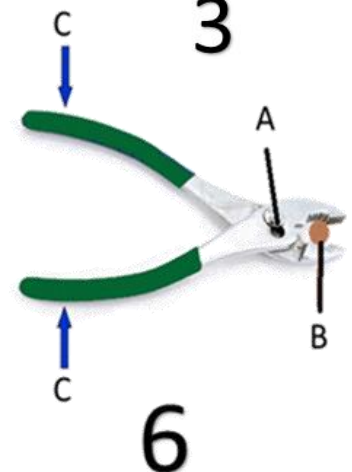
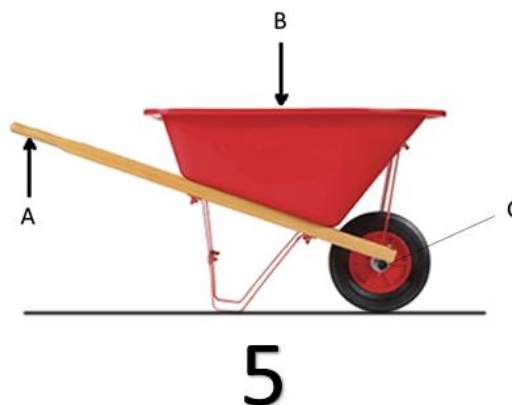
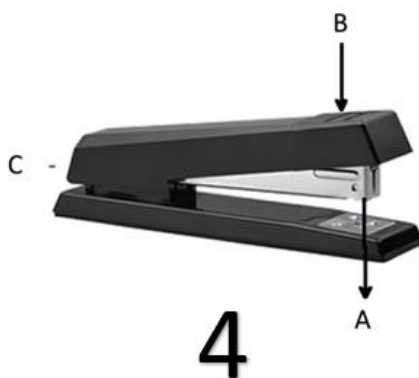
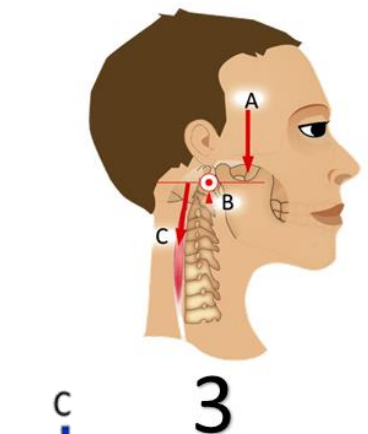
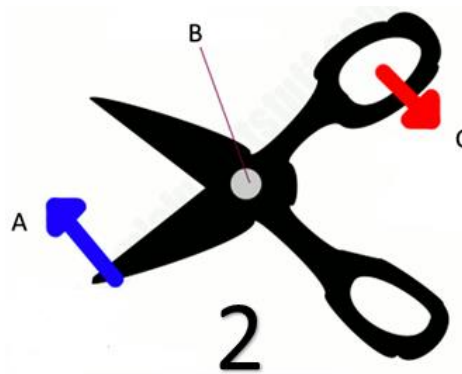
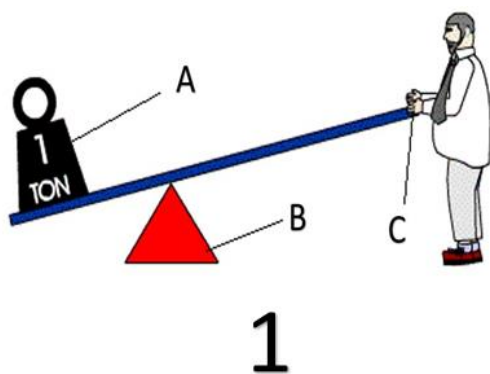
- 1) What is a mechanism?
- 2) In your own words describe what a mechanical advantage is.
- 3) What are the 3 parts of a lever?
- 4) What are the 4 basic actions that mechanisms carry out?
- 5) What is the difference between the 3 classes of levers.

Task 4

- 1) In your own words state the law of mechanical advantage for first class levers.
- 2) Express a positive mechanical advantage in terms of MA
- 3) Express a no mechanical advantage in terms of MA

Task 5

Look at each of the following pictures. Identify the Class of lever, the fulcrum, the effort and load

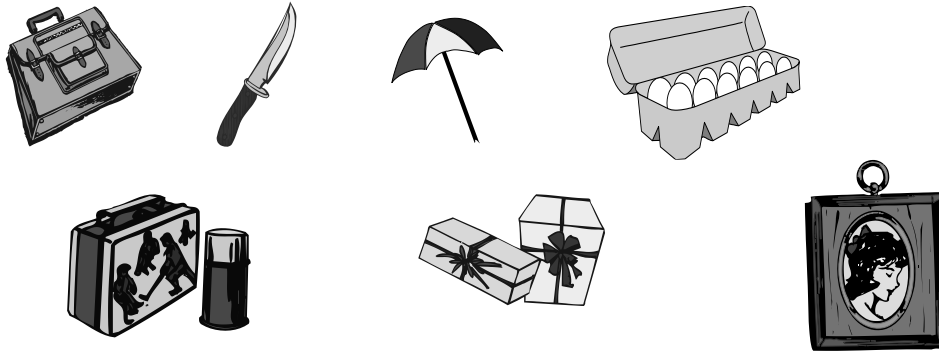


Task 6

- 1) What is a pneumatic system?
- 2) What is a hydraulic system?
- 3) What is the difference between the two systems?

Task 7

1) Look at the pictures below and complete the table:



Product	Need leading to design	Possible design brief
School bag		
Knife		
Lunch box		
Sun umbrella		
Egg carton		
Gift box		
Pencil case		

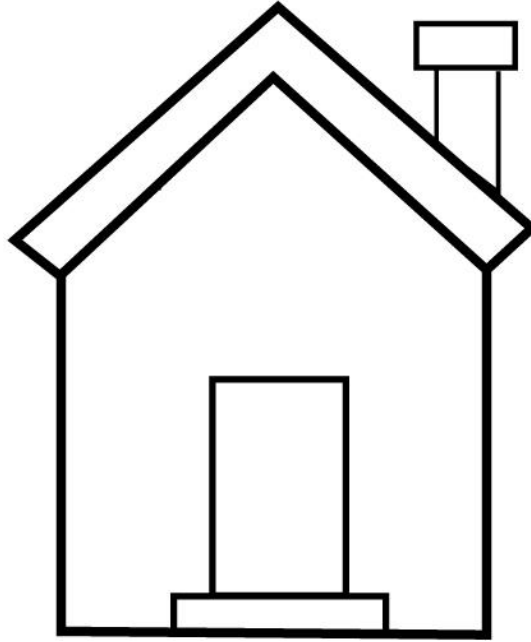
Task 8

1) Each line in a drawing has its own particular meaning. Practise each type of line.

Line	Description	General applications	Practice lines
A 	Continuous thick	Visible outlines Visible edges	
B 	Continuous thin (straight or curved)	Imaginary lines of intersection Dimension lines Projection lines Leader lines Hatching Outlines of revolved sections in place Short center lines Bending lines	

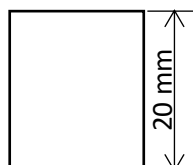
C			
	Dashed thick	Hidden outlines Hidden edges	
D			
	Dashed thin	Hidden outlines Hidden edges	

2) Redraw the following image in your book by using the correct line types.



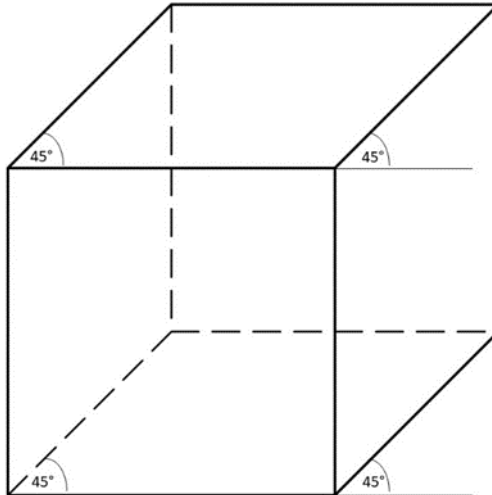
Task 9

- 1) In your book draw a rectangle with a height of 50 mm and a width of 60 mm.
- 2) Dimension your drawing in question one, following the correct dimensioning conventions.
- 3) Name the drawing tool that fits with the following functions.
 - a) Measuring, Draw straight lines
 - b) Draw angles, Measure angles
 - c) Draw circles
 - d) Shading, Correct errors
 - e) Draw, Shading
- 4) If the scale is 50:10, are we drawing something that is big in real life or small?
- 5) If the scale is 1:20, are we drawing something that is big in real life or small?
- 6) Redraw the following square with a scale of 5:1



Task 10

1) Redraw the following cube into your book. The height is 100 mm.



2) Add dimensions to your cube.

3) What would have to be done to this drawing to make it a complete working drawing?

Practical Task 1

Scenario 1: Automatic Pet Feeder

Sharlin Naidoo is a pet shop owner who has been asked by his loyal customers to supply an automatic pet feeder.

Some customers have holiday homes and go away on weekends. They don't always want to take their small pets such as birds, hamsters or mice with them because this is inconvenient.

Small animals need very little care and can be left for short periods, as long as they are fed and watered. The local pet shop owner has carried out a survey in which he found and saw a need for automatic pet feeders.

Questions

1. Name the product to be designed.
2. Who is it for?
3. What is its purpose?
4. Suggest 3 things to ensure the product is safe.
5. Why is it important to ensure that the product looks good?
6. State 2 ways that you don't effect the environment negatively when making the product.

Scenario 2: Jaws of life

Due to poor road and weather conditions there has been an uptake in car accidents in your area. This also means that people can get trapped in the vehicles and are unable to get the urgent medical care that they need.

The rescue services in your area need a set of Jaws-of-life. They have asked you to develop a scale model of such a device. The model must work with linked levers that are powered by hydraulics.

Questions

1) What is the problem that has been presented to you?

Choose by circling the correct answer.

- A) People can't drive.
- B) The road is in a poor condition.
- C) People get into car accidents and are trapped.
- D) The weather is poor.

2) What will happen when you solve the problem?

Choose by circling the correct answer.

- A) It will stop raining.
- B). Rescue services will be able to quickly free trapped people from cars to get the medical attention they need.
- C) The roads will be fixed.
- D) No more corruption.

3) Who will use the solution?

Choose by circling the correct answer.

- A) Scrap metal dealers.
- B) Medics.
- C) Fire fighters.
- D) Police

4) What must the model do?

5) What materials must your product have?

Choose by one of the correct answers.

- A) Strong
- B) Flexible
- C) Rigid
- D) Hard
- E) Heat resistant
- F) Soft

6) Write a design brief for the product.

Practical Task 2

First class levers

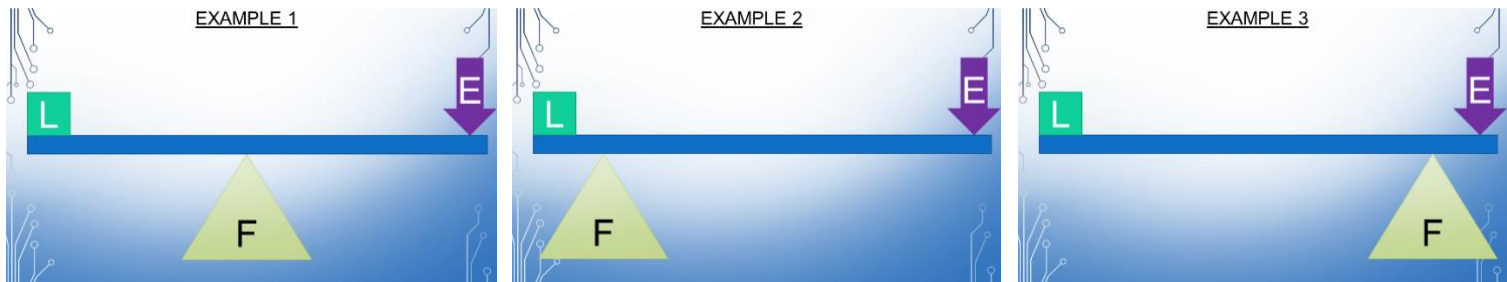
For each of the following examples, pack it out on your desk and apply the force at the effort.

You will need:

A ruler (as the lever)

Eraser (as the load)

Pencil (for the fulcrum)



Questions example 1

- 1a) What do you notice about the force you have to put in?
- 1b) Keeping the Law of mechanical advantage in mind, as well as your experience, what kind of mechanical advantage do you think this lever has?
- 1c) Express this mechanical advantage in terms of MA.

Questions example 2

- 2a) How has the input force changed from example 1 to 2?
- 2b) Keeping the Law of mechanical advantage in mind, as well as your experience, what kind of mechanical advantage do you think this lever has?
- 2c) Express this mechanical advantage in terms of MA.

Questions example 3

- 3a) How has the input force changed from example 2 to 3?
- 3b) Keeping the Law of mechanical advantage in mind, as well as your experience, what kind of mechanical advantage do you think this lever has?
- 3c) Express this mechanical advantage in terms of MA.

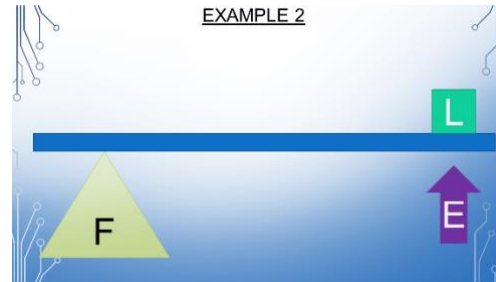
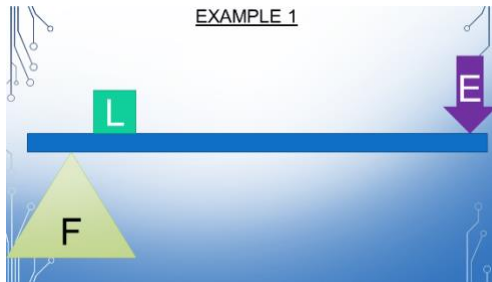
Practical Task 3

Second class levers

For each of the following examples, pack it out on your desk and apply the force at the effort.

You will need:

- A ruler (as the lever)
- Eraser (as the load)
- Pencil (for the fulcrum)



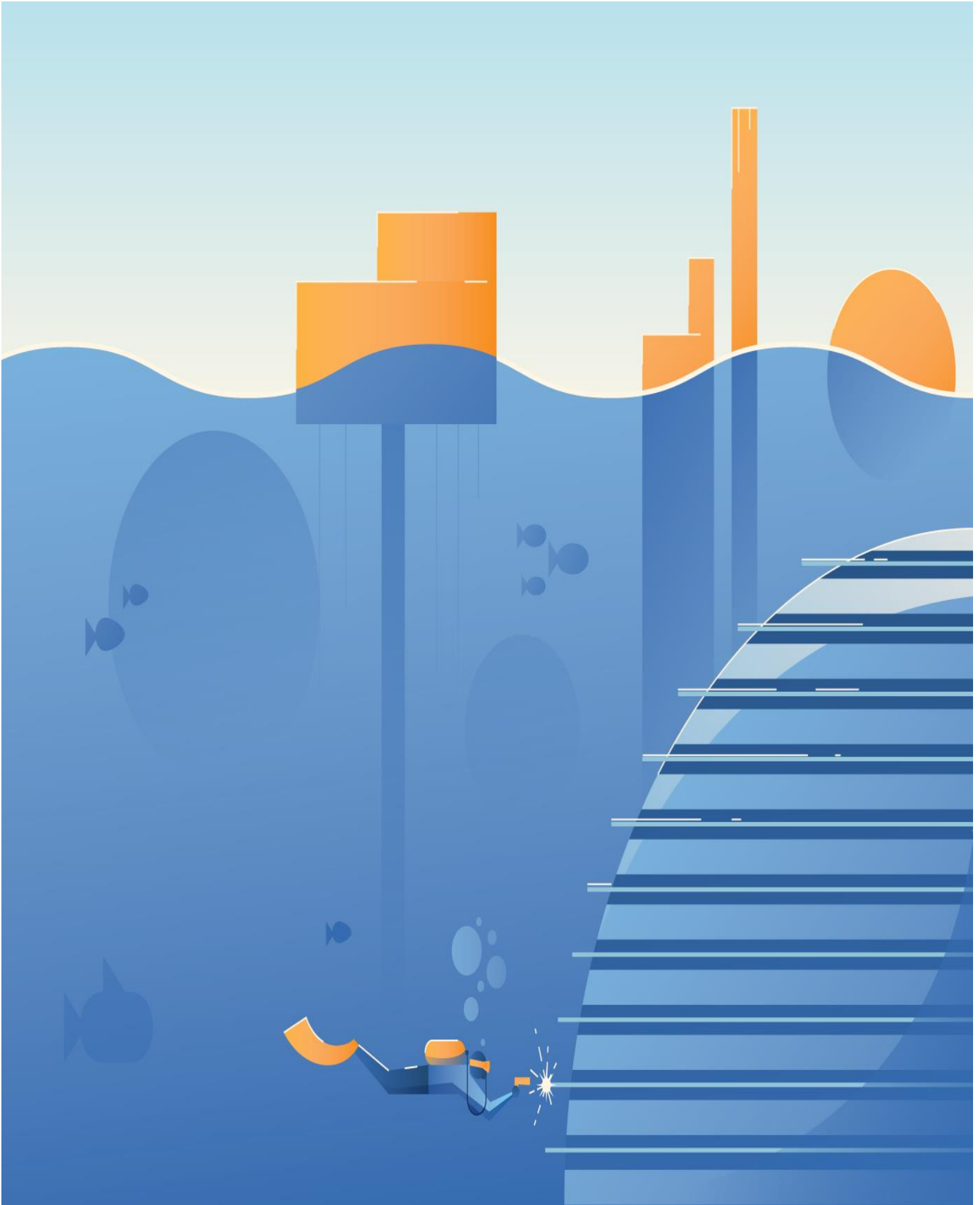
Questions example 1

- 1a) What do you notice about the force you have to put in?
- 1b) Keeping the Law of mechanical advantage in mind, as well as your experience, what kind of mechanical advantage do you think this lever has?
- 1c) Express this mechanical advantage in terms of MA.

Questions example 2

- 2a) How has the input force changed from example 1 to 2?
- 2b) Keeping the Law of mechanical advantage in mind, as well as your experience, what kind of mechanical advantage do you think this lever has?
- 2c) Express this mechanical advantage in terms of MA.

Term 2



Task 1

1) Copy and complete the following table into your exercise book.

Structure	Function / Job
Cup	
Table	
Fence	
Bed	
Spider's web	
Bucket	
Bridge	
House	
Ladder	
Bird's nest	

Task 2

1) Copy and complete the following table into your exercise book.

Structure	Man-made / Natural
Cup	
Table	
Egg	
Bed	
Spider's web	
Bucket	
Shell of a tortoise	
House	
Ladder	
Bird's nest	

Task 3

1) Copy and complete the following table into your exercise book.

Structure	Shell / solid / Frame
Cup	
Table	
Egg	
Bed	
Spider's web	
Bucket	
Shell of a tortoise	
House	
Ladder	
Bird's nest	

Task 4

1) Copy the table, then follow the instruction below.

In the following table mark with an **X** the Classification, type, and function of each structure. (1 X for each category [3X's total per structure])

Structure	Man-made	Natural	Shell	Frame	Solid	Protect	Contain	Span	Support
Example: Chair	X			X					X
Cup									
Table									
Egg									
Bed									
Spider's web									
Bucket									
Shell of a tortoise									
House									
Ladder									
Bird's nest									

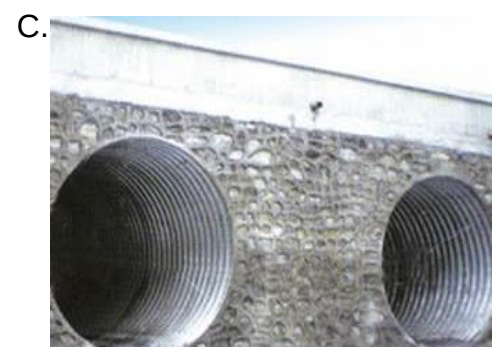
Task 5

1) For each of the following situations state what telephone system you would use and your reason.

Situation	Telephone system	Reason
1. Your car broke down on the highway.		
2. You wish to enter a WhatsApp competition on the radio.		
3. You need to contact your father that works on a farm.		
4. You wish to phone a relative in America.		
5. You wish to inform the school's office that you will not attend school.		

Task 6

1) Identify the strengthening technique used in the following pictures.



Case study 1: Cellphone towers

INTRODUCTION

Even if you don't have your own cell phone, you probably know at least one person who has one. Cell phones are very popular, because they don't need to be physically connected to a transmission system to be able to make and receive calls. When you make or receive a call on a cell phone, the cell phone towers relay signals from one tower to the other. Every day, new towers are being erected all over the country. This meets the growing need for cell phone reception, and makes it possible for more people to be in cell phone contact with others.

* Look at the picture of the cellphone tower below, and answer the questions that follow.

1. What structural elements are present with the cellphone tower?
2. Which reinforcing techniques have been used here?
3. Explain how the tower addresses each of the design issues?



Case study 2 – Existing designs: School desk

Examine the features of a school desk, write the design brief with specifications for a school desk.



Case study 3 – Existing designs: Cell phone

Examine a cell phone, list its features and then write a design brief with specifications for that product.

Camera	Description
Rear Camera	Display – 6.5"
- Resolution (Multiple): 13.0 MP + 2.0 MP	Memory - 3GB RAM 32GB ROM
- Auto Focus: Yes	Camera - Rear Camera: 13.0 MP + 2.0 MP Front Camera: 5.0MP
- OIS: No	SIM - Dual SIM
- Zoom: Digital Zoom up to 10x	Battery – 5000 mAh
- Flash: Yes	Processor
Front Camera	- CPU Speed: 2.3GHz, 1.8GHz
- Resolution: 5.0 MP	- CPU Type: Octa-Core
- F Number: F2.2	Display
- Auto Focus: No	- Size (Main_Display): 165.5mm (6.5")
- OIS: No	- Resolution (Main Display): 720 x 1600 (HD+)
- Flash: No	- Technology (Main Display): PLS LCD
- Video Recording Resolution: FHD (1920 x 1080)@30fps	- Color Depth (Main Display): 16M
Memory	
- RAM_Size (GB): 3 GB	



1. Name 2 features that you can identify from the picture.
2. Write down 5 features and 5 specifications from the given Information.
3. Write a design brief for this product.

Revision task 1

- 1) Connect the term to the correct phrase by writing the correct letter next to the correct number.

Example: 32: Z	32: School	Z: A place where you go to learn and be prepared for your future.
1:	1: Solid Structure	A: A structure that does not fall over easily.
2:	2: Frame Structure	B: A structure found in nature or that has been made by animals.
3:	3: Shell Structure	C: A single hollow structure.
4:	4: Natural Structure	D: A pushing force.
5:	5: Man-Made Structure	E: A single structure that has no other members or gaps.
6:	6: Rigid	F: A pulling force.
7:	7: Tension Force	G: A structure that has been changed or created by a person.
8:	8: Compression Force	H: A structure that has many different members (parts).

2) Identify the Kind, type and function of each structure below. Make a **X** in the 3 correct columns.

Structure	(Natural	Man-made)	(Shell	Solid	Frame)	(Support	Protect	Contain	Span)
1. Chair									
2. Shell of tortoise									
3. Can									
4. Spider's web									
5. Bicycle									
6. Bucket									

Revision task 2

- 1) What are the 4 similarities in frame structures?
- 2) Give 3 advantages of a mobile telephone system.
- 3) Give 4 disadvantages of a landline telephone system.
- 4) Name 5 structural elements.
- 5) Name any 5 non-electrical technologies in everyday life situations.
- 6) Name 5 Electrical technologies

Exam prep. 1

1. For each of the following questions, **circle** the correct answer.
 - 1.1. What happens during stage 1 (Investigate) of the design process
 - a) We build the solution to the problem.
 - b) We advertise our final product.
 - c) We investigate possible problems for us to solve.
 - 1.2. What is stage 2 of the design process?
 - a) Communicate
 - b) Design
 - c) Give up
 - 1.3. What is a design constraint?
 - a) Something that limits your choices.
 - b) A feature of a product.
 - c) Freedom from rules.

1.4. During the design consideration “who is it for”, what is one of the things that we have to consider?

- a) The age of the person.
- b) If the person likes to party.
- c) How pretty the person is.

1.5. In a lever the load is what?

- a) The point where movement originates.
- b) The object that we want to move.
- c) Someone who sells technology.

1.6. A scale is a relationship between the size of what you draw and the size in real life.

- a) True
- b) False

1.7. What are the three reinforcing techniques? (Circle the three correct letters)

- a) Triangulation
- b) Tubing
- c) Slapping
- d) Folding
- e) Pushing

1.2. State whether the following statements are **true** or **false**.

1.2.1. A lever has 3 parts.

1.2.2. A hydraulic system uses compressed dirt to work.

1.2.3. The reinforcing technique folding uses triangles to strengthen structures.

1.2.4. The 3 dimensions in a drawing are width, height and depth.

1.2.5. All measurements are done in mm

2.1. Connect the term to the correct phrase by writing the correct letter next to the correct number.

<u>Term</u>	<u>Answer</u>	<u>Description</u>
32: School	Example: 32: Z	Z: A place where you go to learn and be prepared for your future.
1: Natural structure	1:	A: A structural member that pulls two other members together using tension force.
2: Compression force	2:	B: A structure that has been created or changed by a person.
3: Man-made structure	3:	C: A structure that has multiple members.
4: Tie	4:	D: A pushing force.
5: Frame structure	5:	E: A structure that exists in nature that has not been altered by a person.

2.2. Using the rule for center of gravity of an object. What will happen to the stability of a person if they go from standing to lying down?

2.3. How would you blend a cell phone tower that has to be erected in a forest?

Case study – Existing designs: Cell phone

Even if you don't have your own cell phone, you probably know at least one person who has one. Cell phones are very popular, because they don't need to be physically connected to a transmission system to be able to make and receive calls. When you make or receive a call on a cell phone, the cell phone towers relay signals from one tower to the other. Every day, new towers are being erected all over the country. This meets the growing need for cell phone reception and makes it possible for more people to be in cell phone contact with others.

* Look at the picture of the cellphone tower below and answer the questions that follow.



- 3.1. Name 2 structural elements that you can see in the picture of the tower.
- 3.2. Identify the reinforcing – technique that has been used here?
- 3.3. How does the tower address the design issue **Stability**.
- 3.4. What kind of telephone system is a cell phone part of?
- 3.5. Name 1 Advantage of this kind of telephone system.

Exam prep 2

Scenario: Jaws of life

Driving down the interstate, you reach down to grab your cellphone that fell to the passenger-side floorboard. In an instant, you inadvertently swerve onto the shoulder of the road, and your car flips as you attempt to regain control. When your car comes to rest, you've got a broken leg, your car is upside down and you're pinned underneath the dashboard. In this type of situation, rescue workers will use a set of tools commonly called the "Jaws of Life" to cut away the car and get you out.

The term "Jaws of Life" refers to several types of piston-rod hydraulic tools known as cutters, spreaders and rams that are used to pry open vehicles involved in accidents when a victim may be trapped.

During emergencies, when a few wasted seconds can cost lives, the Jaws of Life are brought in to remove victims from the crashed vehicle. These devices are also used to extricate victims from collapsed concrete and steel structures after earthquakes.

Oil is the most commonly used incompressible fluid for hydraulic machines. However, the Jaws of Life equipment uses a phosphate-ester fluid, which is fire resistant and electrically non-conductive. At a crash scene, this type of synthetic fluid is favored over conventional oil.

The spreader is used to pull pieces of the structure apart, or it can be inserted into the side of the vehicle to tear a section out.

Spreaders and cutters are probably the two pieces of equipment that most people think about when they hear about the Jaws of Life on a news report. The powerful jaws of these machines can tear apart most vehicles like cutting through a tin can. The spreader is used to pull pieces of the structure apart, or it can be inserted into the side of the vehicle to tear a section out. The cutter, as the name suggests, is used to cut through the vehicle like a pair of giant bolt cutters. The mechanics of how these two devices work are very similar, and some Jaws of Life equipment combine the cutter and spreader into one machine.

A ram can be used to push a collapsed dashboard forward to free a victim.

The ram's function is to push apart sections of the car (or other structure). For instance, a rescue worker can place a ram on the door frame and extend the piston to push the dashboard up, creating enough space to free a crash victim.

Hydraulics play an important part in many of the machines around us, but none may be as vital as the equipment known as the "Jaws of Life." These devices have been called upon to save thousands of lives in situations where a few seconds could mean the difference between life and death.

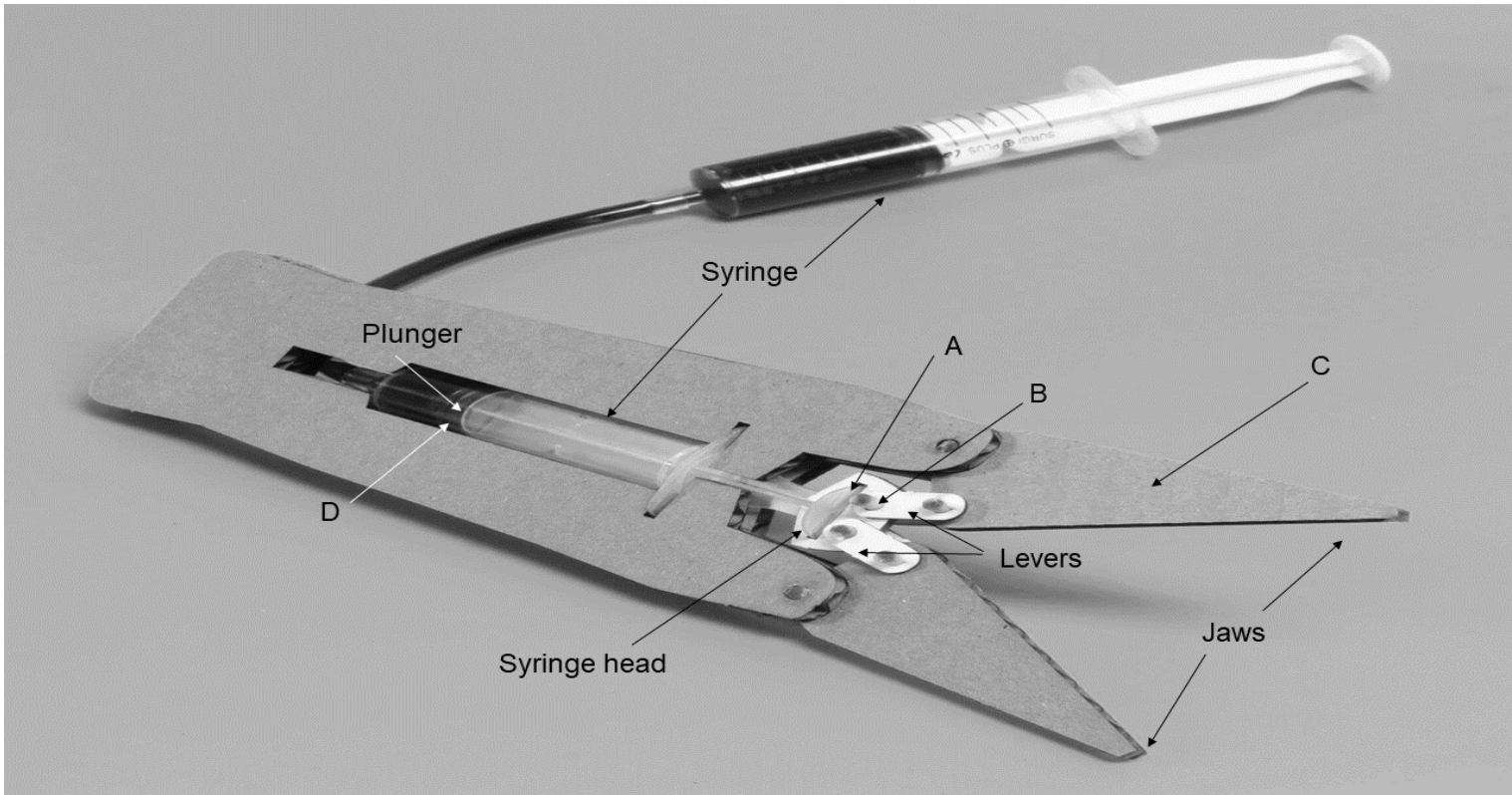
Questions

3.1. What kind of a system is the jaws of life?

3.2. Name the three hydraulic tools that the jaws of life use to free people.

3.3. What kind of fluid does the jaws of life use?

3.4. Examine the picture of a model of the jaws of life, like you had to make during term 1, and answer the questions that follow.



3.4.1. Which part (A, B,C or D) of the jaws represent the effort of the overall lever?

3.4.2. Which part (A, B,C or D) of the jaws represent the load of the overall lever?

3.4.3. Which part (A, B,C or D) of the jaws represent the fulcrum of the overall lever?

3.4.4. Which part (A, B,C or D) of the jaws is responsible for compressing the fluid?

3.4.5. Summarize the law of mechanical advantage of first and second class levers.

3.4.6. What would happen to the output force of the above picture if the levers where made longer and explain why this would happen?

3.5. Construct a design brief for the jaws of life.

4.1. Name one structural element.

4.2. Draw a rectangle with a height of 20 mm and a width of 40mm. Also dimension the width of the rectangle using the correct dimensioning conventions.

4.3. Give the Classification (), type{ } and function [] of each structure below. Make an X in the 3 correct Columns.

Structure	(Man-made)	Natural)	{Shell	Frame	Solid}	[Protect	Contain	Span	Support]
Example: Chair	X			X					X
Table									
Egg-shell									
Spider's web									
Shell of a tortoise									
House									
Basket									

5.1. For each of the following situations state what telephone system you would use and the reason for your choice based on the advantages and disadvantages of the telephone systems.

Situation	Telephone system	Reason
1. Your car broke down on the highway.		
2. You want to inform the police that the telephone cables were stolen.		
3. You need to contact your father that works on a farm.		
4. You wish to phone a relative in America.		
5. You wish to inform the school's office that you will not attend school.		
6. There was an accident inside of a tunnel.		

5.2. Which 3 features of a cell phone is most important to you.

Term 3



Task 1

Answer the following questions.

- 1) When does an object get a magnetic field?
- 2) Are all magnets the same?
- 3) Which poles attract each other?
- 4) Which poles repulse each other?
- 5) Draw the magnetic field lines of a simple bar magnet. Indicate the poles, field lines, as well of the direction of the field lines inside, and outside of the magnet.

Task 2

Answer the following questions.

- 1) Are all magnets permanent?
- 2) Can a magnet be made?
- 3) How can you make a temporary magnet by using another magnet?
- 4) Why does it become magnetic when you do this.
- 5) What is a ferrous metal?
- 6) Name 2 Ferrous metals.
- 7) Name 2 places where we use magnets in everyday life.

Task 3

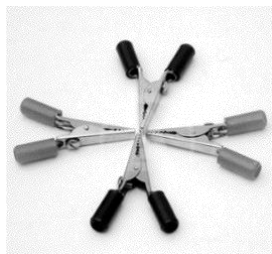
Answer the following questions.

- 1) What is an electrical circuit?
- 2) In what direction does electricity flow outside a cell?
- 3) Identify each of the following electrical components.

A



B



C



Task 4

1) Draw the correct symbols for each of the following electrical components.

a) Cell

b) Battery

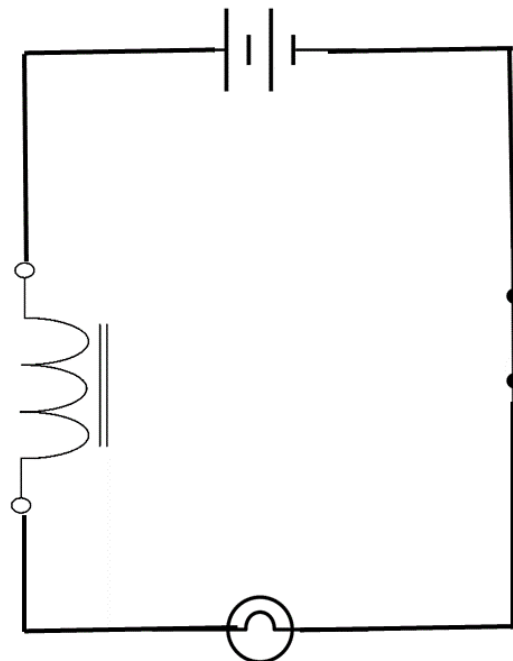
c) On lamp

d) Closed switch

f) Electro-magnet

2) Draw an open circuit with a cell, a push switch, a lamp and a buzzer

3) Evaluate the following electric circuit, write your conclusions and fix any errors below. The circuit is an **open** circuit that consists of a **switch, electro magnet, battery, lamp and conductors**.



Switch:

Lamp:

Electro-magnet:

Conductors:

Battery:

Task 5

1) Name and shortly describe the steps of making an electro-magnet.

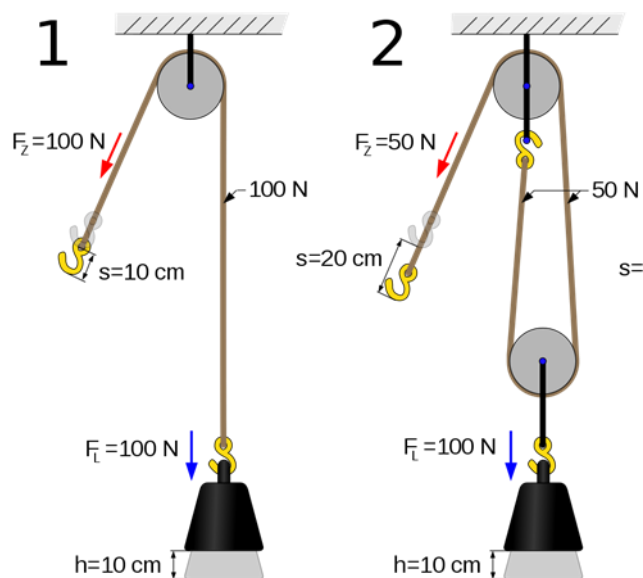
2) What can you do to make an electro magnet even stronger?

Task 6

- 1) What is a crank?
- 2) What kind of motions do a crank work with?
- 3) What are the 4 motions that mechanisms carry out?
- 4) Explain how a crank's mechanical advantage works.
- 5) Express the mechanical advantage of a crank in terms of MA.

Task 7

- 1) Name and explain the 2 kinds of pulleys.
- 2) Investigate the following pictures, and answer the questions that follow.



2.1. What kind of mechanism is portrayed by these two pictures?

2.2. This mechanism has a compound and simple form. Identify which form is given in

Picture 1:

Picture 2:

2.3. What would the input force and input distance become if we add two more wheels to number 2?

Input force:

Input distance:

2.4. What kind of mechanical advantage does this mechanism have?

2.5. Why can this Mechanism not give a mechanical advantage?

Case study 1: Recycling scrap metal

Instruction: Read the following case study and answer the questions that follow.

Are you surprised that so many things we use every day are made of metal? We use different metals to help us with almost everything we do. This means that factories need a constant supply of metal so that they can keep manufacturing all these items. We use millions of tons of steel, aluminium and other metals every year. But the earth's supply of metal will eventually run out. Can you think of the problems this will lead to?

The answer is to recycle the scrap metal. Everything that is made of metal can be broken up and sorted into its basic parts and used again. This will help to save the country millions of Rands each year and will also stop us from using up all the planet's resources.

Metal is ideal for recycling as it can be melted down and reused without losing its strength.

Collecting scrap metal

The process of collecting scrap metal for recycling starts when people learn to not throw metal objects away. Everything made of metal can be recycled and everyone has to make sure that nothing that can be reused is thrown away. At home, make sure that all small metal objects, such as empty tins, are collected separately and sent to recycling centres. Bigger objects such as old household appliances will be collected by scrap metal dealers. Scrap metal dealers sort the different types of metals they collect into piles and send these to the factories. The factories then melt down the metal objects so that the metal can be used again.

Can you see how a magnet can be used to help sort piles of metal? Scrap dealers use large magnets to pull out the magnetic metals from the piles. This speeds up the process.

Making money from recycling

To encourage people not to waste valuable materials that can be recycled, scrap metal dealers will pay for scrap metal. They usually pay by mass, so it doesn't really matter what shape or form the metal comes in, it is the mass that counts. But this can create problems too. Some people steal metal objects such as steel manhole covers and copper wire from telephone and electricity cables, to try and make money. Stealing these articles is not only dishonest, but it also puts other people in danger. If manhole covers are stolen, then there are holes in the roads that people can drive or fall into. Stolen electricity cables can cause loss of power, or lead to innocent people getting electrocuted.

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Questions:

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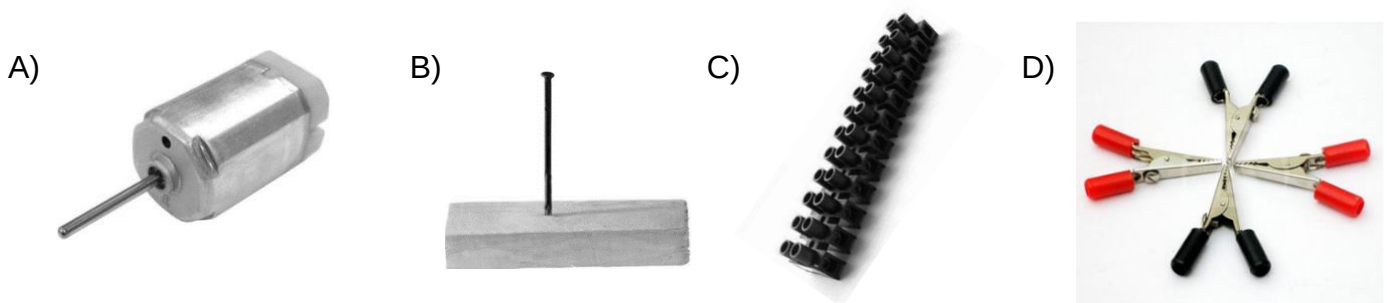
- 1) Do you think that there are metal items that scrap metal dealers should not accept from people trying to sell them? If yes, name them.
- 2) List two objects that people can collect to sell to scrap metal dealers.
- 3) Think of and name two things that you would no longer be able to buy if metal ran out.
- 4) How can you get home appliances to recycling centres.
- 5) How does the money you make from scrapping get calculated?
- 6) What dangers can scrapping lead to?

Revision task 1

- 1) Use the symbols for conductors, lamps, switches, and cells to draw the following.
 - A) Draw an open circuit.
 - B) Draw a closed circuit.
- 2) Name the 4 Types of movements and explain each one.
- 3) Would you rather use a pulley or a crank to ride a bicycle?
- 4) Would you rather use a pulley or a crank to get water from a well?
- 5) Name the materials that can be recycled.

Revision task 2

- 1) State whether the following statements are true or false.
 - a) Magnetism is a result of particles of iron that are aligned.
 - b) Magnets only come in one shape.
 - c) Magnets only come in one size.
 - d) The motors that run a fridge's cooling system contain magnets.
 - e) A magnet's South Pole attracts another magnet's North Pole.
 - f) A magnet's South Pole repels another magnet's South Pole.
 - g) You should store magnets in their boxes and with the keepers on.
- 2) State whether the following is crocodile clamps, connector strips, a nail, a lamp or a motor.



- 3) Explain why a pulley does not give a mechanical advantage.
- 4) What are the 3 things you should not do with a magnet.
- 5) Write the correct word that completes the sentence in your book.
 - a) Permanent magnets (keep, kill) their magnetism for an indefinite period of time.
 - b) Temporary magnets lose their magnetism (quickly, powerfully).
 - c) A bar magnet's one pole is painted red and has N engraved on its (North, West) Pole.
 - d) A bar magnet's one pole is painted grey and has S engraved on its (East, South) Pole.

Term 4



Task 1

- 1) What is a refugee?
- 2) What does internally displaced mean?
- 3) What are the 4 factors that lead to people becoming internally displaced or refugees?
- 4) What does poverty mean?
- 5) What is an economic crisis?
- 6) What is environmental deterioration?

Task 2

- 1) What is a refugee camp?
- 2) Imagine that you are a refugee, you just arrived in the new country after fleeing from a war in your own. The government was not expecting refugees and are not yet prepared for you. What do you think will be 4 basic needs that you would have at that moment?
- 3) Once you have settled as a refugee, what advanced needs would you have?
- 4) What 3 challenges face refugees at the refugee camp?

Task 3

- 1) What are nutrients?
- 2) What is the criteria for suitable foods for refugee camps?
- 3) What problems can there be when trying to provide food to refugee camps?
- 4) Name 2 NGO's that provide food to refugee camps.

Task 4

- 1) What does the abbreviation WFP stand for?
- 2) Which organisation is in charge of the WFP?
- 3) What does the typical WFP basket contain?
- 4) What does the term fortified food refer to?

Task 5

- 1) Thinking of the circumstances that firefighters work in, what do you think are 2 properties that their gear should have?
- 2) What is a textile?
- 3) Name the 4 types of firefighter suits.
- 4) Name the suit you would use in each of the following situations:
 - a) There is a wild fire.
 - b) The chemical labs at the university are on fire.
 - c) Your school's classrooms are burning down.
 - d) A petrol garage is on fire.
- 5) Which of the three layers of the bunker gear would you use for protection of each of the following?

Burning from the fire:

The heat of the fire:

The build-up of sweat and water on the skin:

Task 6

- 1) What are vital organs?
- 2) What is hypothermia?
- 3) What are the symptoms of hypothermia?
- 4) What does the abbreviation NSRI stand for?
- 5) Thinking of the circumstances that the NSRI work in, what do you think are 2 properties that their gear should have?

Practical task 1

The year is 2080. South Africa is in a state of civil war. In order to escape the senseless violence and death many South African citizens have fled to its neighbouring countries.

As there are so many South African refugees now in other countries the UN has intervened. However, the UN does not know anything about South African cultures, food or dishes that the people would know how to prepare. In order to gain more knowledge on the subject of South African dishes the UN has approached your grade 7 class and asked you to prepare a dish that the refugees would be able to make using the food available to refugees for use.

Task

Create a dish for refugees by following the guidelines for suitable emergency foods for refugee camps

- 1) First check the requirements set out by the WFP and criteria for a tasty meal.
- 2) In your books write the recipe for the dish that you are going to create.
- 3) Prepare the dish for your family at home.

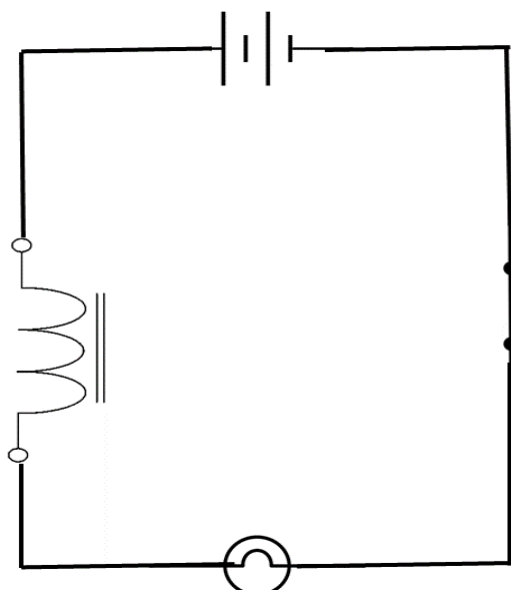
Exam prep 1

1. Connect the definition with the term by writing the letter of the term next to the definition.

Answer	Definition	Term
1.	1. Someone who flees from danger in his/her own country.	A. UN
2.	2. The protection given by one country to the citizens of another country.	B. Xenophobia
3.	3. People who are forced to leave their homes due to a natural disaster.(Not the country)	C. Asylum
4.	4. Tent towns where refugees take shelter.	D. Red Cross
5.	5. An intense dislike or fear of people from other countries.	E. WFP
6.	6. Recommended Daily Allowance	F. NGO
7.	7. World Food Programme	G. Internally displaced
8.	8. Non-Government Organisations.	H. Refugee camp
9.	9. United Nations.	I. RDA
10.	10. A NGO that provides food for refugees.	J. Refugee
11.	11. National Sea Rescue Institute.	K. Textile
12.	12. Any cloth or fabric that has been knitted or woven.	L. NSRI

2. In what direction does electricity flow outside a cell?

3. Evaluate the following electric circuit, write your conclusions and fix any errors below. The circuit is an **open** circuit that consists of a **switch, electro magnet, battery, lamp and conductors**.



Switch:

Electro-magnet:

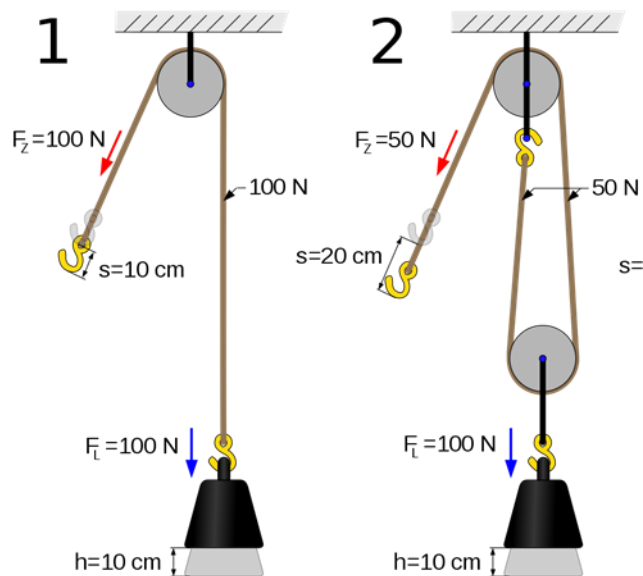
Battery:

Lamp:

Conductors:

4. Use the space below to draw the magnetic field lines of a simple bar magnet. Indicate the poles, field lines, as well of the direction of the field lines inside, and outside of the magnet.

5. Investigate the following pictures, and answer the questions that follow.



5.1. What kind of mechanism is portrayed by these two pictures?

5.2. This mechanism has a compound and simple form. Identify which form is given in

Picture 1:

5.3. What would the input force and input distance become if we add two more wheels to picture 2?

Input force:

Input distance:

5.4. What kind of mechanical advantage does this mechanism have?

Exam prep 2

1.1. Use the “my plate” template below to create a balanced lunch. Also give an example of each nutrient used.

<u>Meal</u>	<u>Dairy</u>	<u>Fruits</u>	<u>Vegetables</u>	<u>Grains</u>	<u>Protein</u>
Breakfast	X	X		X	X
Snack	X	X			
Lunch		X	X	X	X
Snack	X		X		
Dinner (Supper)			X	X	X

1.2. Why do you think that fruit and dairy is left out of dinner?

2. Imagine that you are a refugee, you just arrived in the new country after fleeing from a war in your own. The government was not expecting refugees and are not yet prepared for you. What do you think will be 4 basic needs that you would have at that moment?

3. Thinking of the circumstances that firefighters work in, what do you think are 2 properties that their gear should have?

4. Which of the three layers of the bunker gear would you use for protection of each of the following?

Burning from the fire:

The heat of the fire:

The build-up of sweat and water on the skin:

5. Thinking of the circumstances that the NSRI work in, what do you think are 2 properties that their gear should have?

6. Name the 4 Types of movements and explain each one.

7. Describe what hypothermia is and also give its symptoms.

Exam prep 3

Case study P.24 (activity book)

Instruction: Read the following case study and answer the questions that follow.

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The answer is to recycle the scrap metal. Everything that is made of metal can be broken up and sorted into its basic parts and used again. This will help to save the country millions of Rands each year and will also stop us from using up all the planet's resources.

Metal is ideal for recycling as it can be melted down and reused without losing its strength.

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Can you see how a magnet can be used to help sort piles of metal? Scrap dealers use large magnets to pull out the magnetic metals from the piles. This speeds up the process.

Making money from recycling

To encourage people not to waste valuable materials that can be recycled, scrap metal dealers will pay for scrap metal. They usually pay by mass, so it doesn't really matter what shape or form the metal comes in, it is the mass that counts. But this can create problems too. Some people steal metal objects such as steel manhole covers and copper wire from telephone and electricity cables, to try and make money. Stealing these articles is not only dishonest, but it also puts other people in danger. If manhole covers are stolen, then there are holes in the roads that people can drive or fall into. Stolen electricity cables can cause loss of power, or lead to innocent people getting electrocuted.

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Questions:

- 1.1. Do you think that there are metal items that scrap metal dealers should not accept from people trying to sell them? If yes, name them.
- 1.2. List two objects that people can collect to sell to scrap metal dealers.
- 1.3. Think of and name two things that you would no longer be able to buy if metal ran out.
- 1.4. How can you get home appliances to recycling centres.
- 1.5. How does the money you make from scrapping get calculated?
- 1.6. What dangers can scrapping lead to?
- 1.7. What kind of device would help scrap metal dealers to sort these metals that are collected?
(You built it in term 3)
- 1.8. Why would a permanent magnet not work for the same situation?
2. In your own words explain why a pulley does not give a mechanical advantage
3. Name 2 nutrients and indicate which one is most important to you and why.
4. Why would an electro magnet be useful at a junk yard?
5. Why would a permanent magnet not work for the same situation?
6. What are the 4 things we can recycle?
7. Explain how you can create an electro magnet. (What you need and how to put it together)

Exam prep 4

1. What properties do firefighter clothing need?
2. Name the 3 main problems refugees face.
3. What are the 6 criteria that make emergency food suitable for refugee camps?
4. What are the 3 problems with providing food?
5. What are the 3 layers of a turnout gear, and what is each layer's properties?
6. What are the 3 types of clothing NSRI team uses?
7. Mark 3 things you **should not** do to a magnet with an X.

a) Drop It.	
b) Hug it.	
c) Hit it.	
d) Heat it.	

Use the symbols for conductors, lamps, switches, and cells to draw the following.

8. A) Draw an open circuit.

B) Draw a closed circuit.



9. State whether the following statements are true or false.

- a. Magnetism is a result of particles of iron that are aligned. _____
- b. Magnets only come in one shape. _____

10. Name 3 materials we can recycle.

11. State whether the following statements are true or false.

- a. Magnetism is a result of particles of iron that are aligned.
- b. Magnets only come in one shape.
- c. Magnets only come in one size.
- d. The motors that run a fridge's cooling system contain magnets.
- e. A magnet's South Pole attracts another magnet's North Pole.
- f. A magnet's South Pole repels another magnet's South Pole.
- g. You should store magnets in their boxes and with the keepers on.
- h. Kevlar is fire proof.

12. Underline the correct word to complete the sentence.

- a. Permanent magnets (keep, kill) their magnetism for an indefinite period of time.
- b. Temporary magnets lose their magnetism (quickly, powerfully).
- c. A bar magnet's one pole is painted red and has N engraved on its (North, West) Pole.
- d. A bar magnet's one pole is painted grey and has S engraved on its (East, South) Pole.
- e. The space in which the earth's magnetic effect is felt is called Earth's (magnetic, electric) field.