



Student booklet

Name: _____ Group: _____

Animated cards



Background

A manufacturer of didactic materials calls upon your talents. He needs you to design explanatory animated cards intended for classes in the 1st cycle of high school.

Overall function: These cards must illustrate a scientific concept as a whole when the user activates a crank.



Specifications

In terms of the human environment

The animated card must:

- allow the user to easily understand the chosen concept;
- be activated using a crank which will put images in motion, illustrating the chosen concept.

In terms of the technical environment

The animated card must:

- be assembled on a 200 mm X 300mm fibreboard panel;
- comprise **at least one mechanism** for transmission or transformation of motion, **animating at least two (2) elements of the image**;
- be used horizontally or vertically;
- be made only from the equipment, materials and tools put at your disposal;
- be accompanied by a **diagram of principles** for its operation, to allow maintenance as needed (replacement of parts, repairs).

In terms of the industrial environment

The animated card must:

- be entirely made in your science and technology classroom using only the equipment, materials and tools put at your disposal.

Linguistically reviewed document
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Your initial ideas

You must **select one concept** to illustrate among the scientific concepts identified by the manufacturer:

Photosynthesis

Rock formation

Water cycle

Respiration

Orogenesis

Fertilization

Volcanism

The scientific concept to be illustrated on your animated card is: _____

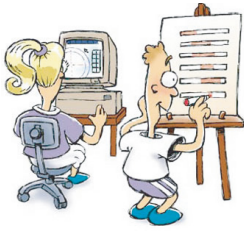
1. All the concepts chosen by the manufacturer involve a cycle or present inputs and outputs. In your opinion, why did they choose these concepts?

2. What is a mechanism?

3. a) In your opinion, what will the **nature of the motion created by the force of the action be? Explain your answer.**

b) Explain or illustrate the chosen concept and indicate what could be animated on your card.

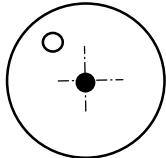
Cr1 Appropriate representation of the situation	Reformulation of the problem	
	Formulating solutions trails	



Planning and production

4. Use this page to describe your prototype.

- If you must change the elements as you go along, **use a different colour pencil** to adjust and annotate your initial plan.



Note: the crank may be placed wherever you choose on the panel.



5. Name the main parts, give their approximate dimensions, the materials and tools required for making them. Use the number of lines necessary.

For this time, it is not required that you include the equipment used for links (e.g. screws, glue, etc.).

Parts	Dimensions	Material(s)	Tools
<i>Example: crank</i>	<i>50 mm x 50 mm</i>	<i>Wood wheel and dowel</i>	<i>Drill, mitre box and hand saw</i>

Cr2 Development of a suitable procedure	Planning the procedure	
	Selection of resources (materials, equipment, tools, etc.)	
Cr3 Appropriate implementation of the procedure	Use of materials selected	
	Observances of safety rules	
	Use of appropriate strategies and techniques	
	Adjustments during the implementation of the procedure	
	Using appropriate types of representation (... , diagrams)	

6. Identify the two main difficulties encountered during the fabrication, assembly or testing of your prototype and describe the adjustments made.

Difficulties encountered	Adjustments made
.....
.....

Cr3 Appropriate implementation of the procedure	Adjustments during the implementation of the procedure	
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Outcome

7. Make a diagram of principles of the operation of your prototype. Indicate the motion of the parts and add the necessary symbols.

Part free in rotation and linked in translation	Part free in rotation and in translation	Complete link	Part free in translation and linked in rotation

Diagram of principles

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Cr4 Development of relevant explanations, solutions or conclusions	Formulation of explanations in accordance with (...) knowledge acquired	
	Use of appropriate terminology, rules and conventions	



Outcome (Continued)

8. Evaluate your prototype based on the proposed specifications. Identify one positive aspect and one aspect that could be improved. Explain your answer.

Positive aspect:	Explanations:
Aspect to be improved:	Explanations:

9. Hand your prototype in to your teacher. Don't forget to identify it by indicating your name and that of your teammate.

Cr4 Development of relevant explanations, solutions or conclusions	Formulation of explanations in accordance with knowledge acquired	
	Production of a prototype in compliance with the specifications	
	Proposal of improvements or new solutions	