CPFPP - Sciences 5e: Méthodes scientifiques (RA: 5MS1)

Description

Dans ce tableau, vous trouverez:

1. Des informations pour vous aidez dans votre planification pour la question directrice: *Comment les preuves conduisent-elles à la compréhension?*
2. Un document pour guider votre enseignement avec les élèves.
3. Des sources d'informations pour vous aider à planifier votre enseignement afin d'engager vos élèves dans leur exploration du sujet
4. Des suggestions de projets et activités en classe avec vos élèves.

N.B. Ce tableau est en cours d'évolution. Revenez régulièrement pour des mises à jour. Si vous avez des suggestions de ressources, svp remplir ce petit formulaire (vous pouvez demeurer anomyme).

Légende (types de ressources)

Subjects

Science

Grades

Grade 5

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Last Modified: January 7, 2025

Generated On: April 12, 2025

Curriculum

Science - Grade 5

ORGANIZING IDEA

Scientific Methods: Investigation of the physical world is enhanced through the use of scientific methods that attempt to remove human biases and increase objectivity.

GUIDING QUESTION

How does evidence lead to understanding?

LEARNING OUTCOME

Students investigate how evidence is gathered and explain the importance of ethics in science.

KNOWLEDGE

Phenomena are facts or events that can be observed.

Some phenomena can be directly observed using the human senses.

Phenomena that cannot be directly observed using the human senses can be observed and measured using technologies such as telescopes, microscopes, and X-rays.

UNDERSTANDING

Investigations can be conducted to better understand phenomena.

SKILLS & PROCEDURES

Discuss technologies that provide scientists with evidence that cannot be directly observed using the human senses.

Natural phenomena occur without human input, such as lightning and auroras.

KNOWLEDGE

Bias is any personal thoughts, feelings, or expectations that influence an investigation.

Humans are not usually aware of their personal biases.

UNDERSTANDING

Evidence is more reliable and valid when investigations are conducted in a way that limits bias.

SKILLS & PROCEDURES

Identify biases that could influence an investigation.

KNOWLEDGE

A variable is a condition or factor that can influence the outcome of an experiment.

A manipulated or independent variable is changed to determine what effect the change will have on the responding variable in a controlled experiment.

A responding or dependent variable changes as a result of changes to the manipulated variable in a controlled experiment.

A controlled variable is kept the

UNDERSTANDING

Evidence from a controlled experiment can be used to make conclusions about cause-and-effect relationships between variables.

SKILLS & PROCEDURES

Plan and conduct a controlled experiment.

Identify the variables in a controlled experiment.

Apply vocabulary for variables correctly in science contexts.

Evaluate the effect of the manipulated variable on the responding variable in a controlled experiment.

Defend a conclusion about cause and effect based on evidence produced in a

same in a controlled experiment.

A controlled experiment is an investigation in which one variable is changed and all other variables are kept the same.

controlled experiment.

KNOWLEDGE

Representations of data can include all or some of the data.

Diverse representations of data can communicate evidence differently.

Evidence that is communicated clearly and accurately

- uses correct vocabulary
- includes all relevant data
- is free from personal bias
- can be understood by the intended audience

Evidence that is not communicated clearly and accurately can influence the validity and reliability of the investigation.

UNDERSTANDING

Evidence must be communicated clearly and accurately.

SKILLS & PROCEDURES

Discuss the use of diverse representations of data in communicating evidence.

Compare the clarity and accuracy of evidence communicated by diverse representations of data.

Discuss potential impacts of evidence that is not communicated clearly and accurately.

KNOWLEDGE

UNDERSTANDING

SKILLS & PROCEDURES

Scientific ethics are principles and rules that guide behaviour when conducting scientific investigations. Scientific ethics are demonstrated during investigations in ways such as • not changing data in an experiment • minimizing harm to environments, humans, and other animals • respecting the privacy of participants • limiting personal bias	Evidence needs to be produced, handled, and shared ethically.	Examine the importance of scientific ethics in investigations. Demonstrate scientific ethics during investigations.

Soutien aux enseignants

Évaluation

Outils d'apprentissage

Décider de recueillir des données descriptives ou bien des données mesurées au cours d'une étude

Interpréter des données recueillies dans le cadre d'études

Interpréter des données et des preuves exprimées en unités SI

Représenter les preuves d'une étude de diverses manières

Recueillir des données fiables lors d'études

Tirer des conclusions en utilisant des preuves fiables et valides provenant d'études

Recueillir des données valides en utilisant avec exactitude des instruments ou de la technologie lors d'études

Discuter d'instruments ou de technologies utilisés pour améliorer l'exactitude lors d'études

Collaborer pour évaluer la fiabilité et la validité d'une collecte de données

Perspectives autochtones