PRIMARY EDUCATORS NETWORK

COMPETENCY-BASED CURRICULUM (CBC) AND SCIENCE ASSESSMENT

What should teachers understand?

The **Competency-Based Curriculum (CBC)** changes the main question from:

"What facts has the learner memorised?"

to:

"What can the learner demonstrate, using what they know, understand and can do?"

NCDC describes competency-based learning as moving beyond memorisation towards learners being able to **think critically, solve problems and apply what they learn in meaningful, real-life situations**. In the Primary Curriculum, the Primary Department aims to develop learners' **knowledge, skills, values and competencies**, and Integrated Science is one of the P4–P7 subjects. (NCDC)

1. What is a competence?

A **competence** is demonstrated when a learner can use their **knowledge, understanding, skills, values and attitudes** appropriately to perform a task or deal with a situation.

Therefore:

Knowledge alone ≠ competence.

For example, a learner may know that **dirty water can cause disease**. That is knowledge.

A competent learner should also be able to:

- explain why unsafe water causes disease;
- identify unsafe water practices in the community;
- suggest ways of making water safe;
- demonstrate safe water practices;
- make responsible decisions concerning water and health.

That is why CBC assessment should provide opportunities for learners to **demonstrate what they can do**, not merely reproduce information.

2. What does CBC mean for the Science teacher?

In Science, the teacher should deliberately develop:

KNOWLEDGE

The learner knows scientific facts, concepts, terms and processes.

UNDERSTANDING

The learner can explain, interpret, compare, classify and give reasons.

SKILLS

The learner can observe, measure, investigate, communicate, manipulate materials, interpret information and solve problems.

VALUES AND ATTITUDES

The learner demonstrates responsible behaviour towards health, safety, other people and the environment.

APPLICATION

The learner uses Science knowledge and skills to deal with real-life situations.

NCDC's assessment guidance specifically states that CBC assessment should move beyond recall and assess learners' ability to **apply knowledge, skills and values in real-life situations**. (NCDC)

3. What should change in our Science questions?

Item writers should move from questions that mainly ask:

“What do you know?”

towards questions that also ask:

“What do you understand?”

and:

“What can you do with what you know?”

Example: HIV/AIDS

Knowledge:

State one lifestyle that can lead to the spread of HIV/AIDS.

Comprehension:

Explain how the lifestyle you have mentioned can lead to the spread of HIV/AIDS.

Application:

A P7 learner is being pressured by friends to engage in behaviour that could expose him or her to HIV infection. What advice would you give the learner? Give reasons for your advice.

The three questions may cover the same content, but they demand **different levels of thinking**.

4. CBC does NOT mean removing knowledge

This is an important message for teachers and item writers.

CBC is not "knowledge versus skills." It is knowledge used meaningfully.

A learner cannot apply knowledge that they do not possess.

Therefore, good Science teaching should build a progression:

KNOWLEDGE → UNDERSTANDING → SKILLS → APPLICATION → COMPETENCE

For example:

Know: The function of the lungs.
↓
Understand: Explain how the lungs help in gaseous exchange.
↓
Skill: Observe/model how breathing occurs.
↓
Apply: Explain why a person may experience difficulty breathing in a particular situation.
↓
Competence: Use the knowledge to make an appropriate health or safety decision.

5. CBC and the teacher's role

The teacher is no longer simply the person who **delivers information**.

The teacher creates opportunities for learners to:

- investigate;
- ask questions;
- discuss;
- observe;
- experiment;
- explain;
- solve problems;
- work together;
- make decisions;
- reflect on their learning; and
- apply Science to their environment.

NCDC's competency-based pedagogy guidance emphasises **learner-centred approaches, critical thinking, problem-solving, creativity, collaboration, inquiry and real-world application**. (NCDC)

For the Science classroom:

Instead of saying:

"Memorise the causes of soil erosion."

Give learners a local situation:

"Heavy rain has washed away soil from the school garden. What could have caused this, and what measures would you recommend to the school?"

Now learners have to **think and apply** what they have learnt.

6. CBC and assessment

Assessment should be part of the teaching and learning process—not something that happens only at the end.

NCDC states that primary assessment includes **formative and summative assessment**, and that what is assessed is **competence**. (National Curriculum Development Centre)

Therefore, teachers should continually ask:

What can this learner do now?

What can the learner not yet do?

What misconception is preventing the learner from succeeding?

What teaching activity will help the learner improve?

This is particularly important for the Kassanda workshop because the learners' scripts should not simply be used to produce marks. **The scripts are evidence of learner thinking and should guide the teacher's next intervention.**

UNEB similarly encourages teachers to study candidate responses alongside the question papers and curriculum to identify areas of difficulty and improve teaching practices. (UNEB eRegistration)

7. Advice to item writers

Before approving a Science item, ask:

A. Knowledge

What does the learner need to remember?

B. Comprehension

What must the learner explain or demonstrate understanding of?

C. Application

What must the learner do with that knowledge in a situation?

D. Competence

What real ability is this question allowing us to observe?

If the answer to the last question is unclear, **review the item.**

A powerful message for the workshop

“Do not set questions only to find out whether the learner remembers Science. Set questions to find out whether the learner can use Science.”

A strong CBC Science paper therefore contains a deliberate mixture of:

Knowledge + Understanding + Skills + Application + Reasoning

—not simply a long list of **"Name, State, Mention and Identify"** questions.

The ultimate test

When reviewing an item, ask:

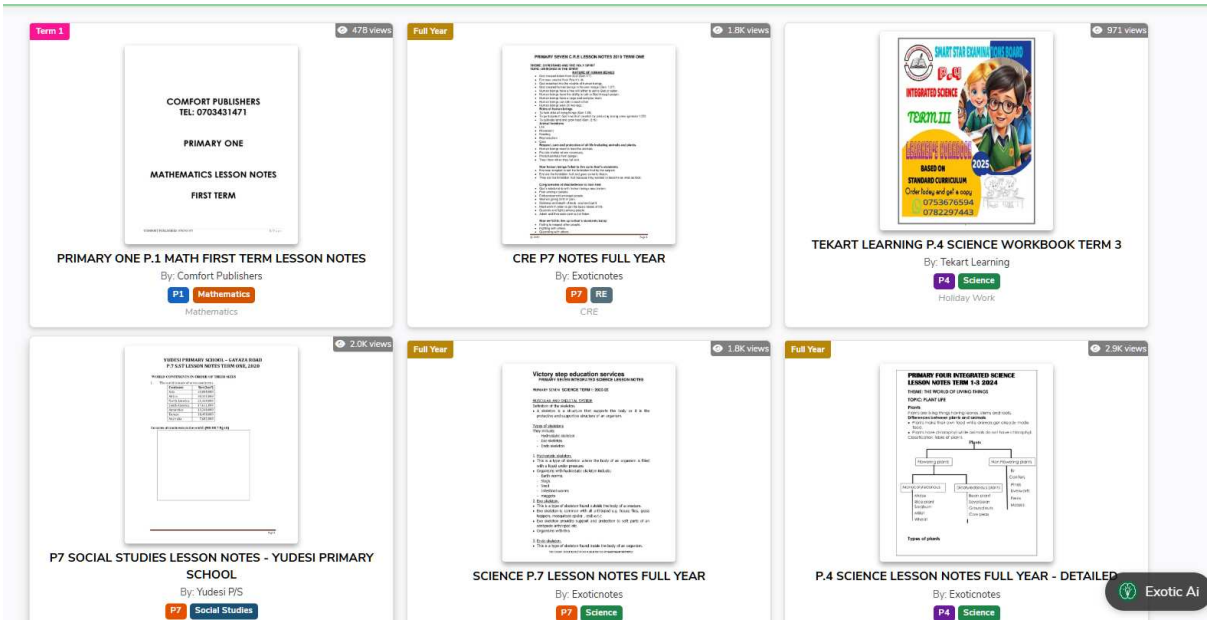
"If this learner gets the answer correct, what have we actually learnt about the learner's competence?"

If the answer is **"They can remember a fact,"** the item may be useful—but it should not be the whole paper.

If the answer is **"They can understand, reason, apply knowledge and make an appropriate decision,"** then the item is providing much stronger evidence of competency.

That is the direction item writers should take.

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