

Mentors Formative Lesson Observation Resource (M-FLOR)

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School: Al QUDRA	Class: 11 General
Period: 2	Date: 30/04/2026

Brief description of the lesson topic, learning objectives, and planned activities

Lesson Topic: Classifying Chemical Reactions - Decomposition Reactions

Learning Objectives:

- **Identify** a decomposition reaction from a given set of chemical equations.
- **Predict** the product formed from reactants.
- **Write** a balanced chemical equation representing the reaction.

Introduction & Hook (10 mins): The lesson will open with a brief review of the previously taught concept of synthesis reactions ($A+B \rightarrow AB$). I will then introduce decomposition as the reverse process ($AB \rightarrow A+B$) using a visual demonstration or video (e.g., the catalytic decomposition of hydrogen peroxide). This inquiry-based hook will allow students to observe a single reactant breaking down into multiple products.

Main Collaborative Task (25 mins): Students will work in their established, differentiated collaborative groups. They will be provided with a set of equations to classify, specifically separating decomposition reactions from the synthesis reactions they learned previously. They will then practice predicting the products of simple binary compounds and balancing the equations. Tiered extension tasks will be provided on the desks for fast-finishing groups to maintain cognitive engagement.

Plenary & Assessment (10 mins): The lesson will conclude with an independent exit ticket to assess individual mastery. Students will independently identify, predict the products for, and balance one final decomposition equation.

As per the M-FLOR guidance, we have selected two specific categories for this observation:

- Clarity of presentation of new curriculum concepts and/or skills and review of previously taught concepts and/or skills
- Classroom interactions.

DURING THE LESSON

STEP 2: Lesson Observation

Conduct the lesson observation. Based on the categories you selected, describe what you observe, record questions, and note comments using the grid below.

<p>Observation Category 1 Clarity of presentation of new curriculum concepts and/or skills and review of previously taught concepts and/or skills: providing opportunities for students to express what they know and can do in relation to the topic of the lesson; linking the new curriculum concepts and/or skills to students' prior knowledge and know-how; using clear, suitable well-pitched language with plenty of examples of new and previously taught concepts/skills</p>	
<p>What is happening during the lesson?</p> <p>You opened the lesson by asking Tariq and Saeed to recall the general formula for a synthesis reaction on the whiteboard.</p> <p>Once they correctly identified $A+B \rightarrow AB$, you introduced decomposition as the direct reverse process.</p> <p>You utilized a visual demonstration of hydrogen peroxide decomposing, which effectively illustrated the new curriculum concept in a tangible way.</p> <p>When moving to the main task, you provided clear, step-by-step examples of how to predict products for binary compounds.</p>	<p>Areas of strength:</p> <p>You successfully linked the new curriculum concepts and skills to the students' prior knowledge and know-how by using their understanding of synthesis as a direct springboard.</p> <p>You provided excellent opportunities for students to express what they know and can do right at the beginning of the lesson.</p> <p>Your instructional language was clear and well-pitched, avoiding cognitive overload when introducing the new formula mechanics.</p> <p>Areas needing further development:</p> <p>While your initial explanation was very clear, consider providing one additional guided example on the board of predicting the products of a slightly more complex compound before releasing the class fully into independent group work.</p> <p>Some students, such as Mansoor and Hamdan, hesitated briefly when faced with chemical formulas containing different subscripts.</p>

<p>Observation Category 2 Classroom interactions: engaging in formative dialogue with students clarifying progress, strengths and challenges in their learning and how they can build on their current understandings and skills; incorporating students' ideas in classroom dialogue; distributing interaction opportunities across a wide range of students in the class participate in plenary and groupwork phases of the lesson</p>	
<p>What is happening during the lesson?</p> <p>You continuously circulated among the Al Qudra students, engaging in formative dialogue.</p> <p>When observing Khalifa and Majid's group, you noticed them using colloquial terms to describe the reaction and promptly paused them, asking them to restate their findings using the academic terms "reactants," "yields," and "products."</p> <p>Later, you incorporated students' ideas in classroom dialogue by having Zayed share his group's specific strategy for balancing a tricky decomposition equation with the rest of the class.</p> <p>You consistently used the correct terminology (reactants, products, yields, subscripts)</p>	<p>Areas of strength:</p> <p>You effectively distributed interaction opportunities across a wide range of students in the class during the groupwork phase.</p> <p>You successfully pushed students to elevate their academic language, clarifying progress and challenges in their learning regarding subject-specific vocabulary.</p> <p>Areas needing further development:</p> <p>You did a highly effective job of correcting language and fostering "learning talk" when you were physically present with a group.</p>

To build on this, try to establish a peer-accountability system where students like Khalid and Mohammed are encouraged to politely correct each other's vocabulary even when you are assisting a group on the other side of the laboratory.

AFTER THE LESSON

STEP 3: Post-Lesson Observation Interview

Suggested questions **to ask your Intern** after the lesson observation:

1. What were some of the things **you** did in the lesson that you were pleased with?
2. Can you tell me **your thinking** behind that? (e.g., putting them into groups then ... asking that group or that pupil to give a demonstration)
3. I really liked how the group work went. How did **you** make it go so smoothly? What was your thinking?
4. Can you give me more detail?
5. Can you give me one or two examples of that?
6. What do you mean by...?
7. Do you mean Have I understood you right?
8. What else did **you** do that you were pleased with?

General comments and questions:

Mr. Hatem: What were some of the things you did in the lesson that you were pleased with?

Abdulrahman: I was particularly pleased with the lesson's opening. By starting with a review of the synthesis reactions ($A+B \rightarrow AB$) we covered previously, the students were primed for the new concept. I was also very happy with the classroom interactions during the plenary phase; I made a conscious effort to distribute questions to students who are typically quieter, like Hamdan and Khalifa, and they responded very well.

Mr. Hatem: Can you tell me your thinking behind that? (e.g., starting with the review before the catalytic decomposition demonstration)

Abdulrahman: My thinking was rooted in managing their cognitive load. Decomposition can be abstract, so by explicitly presenting it as the exact reverse of the synthesis reactions they had already mastered, I provided a familiar anchor. Once that bridge was built, the visual demonstration of hydrogen peroxide breaking apart made immediate, logical sense to them, rather than appearing as an isolated, confusing phenomenon.

Mr. Hatem: I really liked how the group work went. How did you make it go so smoothly? What was your thinking?

Abdulrahman: Thank you. My thinking there was to focus heavily on the structure of the task and the resources available to them. I utilized established, differentiated collaborative groups so the students already knew their roles. To ensure momentum didn't drop when groups finished predicting the products early, I had tiered extension tasks ready on their desks. This kept the fast-finishers cognitively engaged and allowed me to focus my attention on the groups that needed more support.

Mr. Hatem: Can you give me more detail?

Abdulrahman: Absolutely. Because I didn't have to manage off-task behavior from early finishers, I was able to circulate continuously and engage in formative dialogue. I wasn't just checking if their balanced equations were mathematically correct; I was listening closely to *how* they were discussing the formulas with each other to ensure they were using the academic vocabulary we established.

Mr. Hatem: Can you give me one or two examples of that?

Abdulrahman: Yes. When I was observing Saeed and Tariq's group, I heard them using the word "makes" when reading their equation aloud. I stepped in and prompted them to correct their phrasing to "yields." Another example was with Majid; he compared decomposition to "taking apart Lego blocks." Instead of just moving on, I paused to validate his analogy and then explicitly translated it into formal chemical terminology for the group, reinforcing that the "Lego structure" is the reactant and the "individual blocks" are the products.

Mr. Hatem: What do you mean by "formative dialogue" in the context of their group work?

Abdulrahman: By formative dialogue, I mean having purposeful, guided conversations with the students while they are working, rather than just lecturing them. I use these interactions to assess their understanding in real-time, clarifying their progress and immediately challenging any misconceptions or incorrect vocabulary before those errors become internalized.

Mr. Hatem: Do you mean you are utilizing their peer-to-peer discussions as an ongoing, real-time assessment tool to shape your immediate instruction? Have I understood you right?

Abdulrahman: Yes, exactly. It allows me to catch things like Sultan and Omar reverting to colloquial language ("breaking down into pieces") early on. If I only relied on their written work, I wouldn't know they were struggling with the scientific fluency and "learning talk" required for the subject.

Mr. Hatem: What else did you do that you were pleased with?

Abdulrahman: I was very pleased with the independent exit ticket at the end of the lesson. While the collaborative group work was excellent for peer support and dialogic learning, I needed individual accountability. The exit ticket confirmed that each student had personally achieved the learning objectives: they could independently identify a decomposition reaction, predict its specific products, and correctly balance the final chemical equation.

Signed: 

(Mentor)

Date: 30-4-26

Signed: 

(Intern)

Date: 30/4/26

STEP 4: Intern's Reflection on the Experience

Describe

The 45-minute chemistry lesson for Grade 11 General students focused on classifying decomposition reactions, predicting their products, and writing balanced chemical equations. The instruction commenced with a brief review of previously taught synthesis reactions ($A+B\rightarrow AB$) to anchor the new concept. This was followed by a visual demonstration of the catalytic decomposition of hydrogen peroxide to illustrate the reverse process ($AB\rightarrow A+B$). Students then transitioned into differentiated collaborative groups for a 25-minute main task, where they classified equations, predicted products for binary compounds, and balanced the reactions. Tiered extension tasks were provided on the desks to maintain engagement for fast-finishing groups. The lesson concluded with an independent exit ticket to assess individual mastery of the learning objectives.

Evaluation

A primary success of the lesson was the effective bridging of new curriculum concepts to students' prior knowledge. By framing decomposition as the direct opposite of synthesis, and utilizing the visual demonstration of hydrogen peroxide, the students were able to grasp the mechanics of the formula quickly. Another success was the quality of teacher-student interactions; purposeful formative dialogue allowed for immediate correction of terminology, such as prompting Saeed and Tariq to use "yields" rather than "makes," and validating Majid's "Lego blocks" analogy before translating it into formal chemical vocabulary.

However, two distinct challenges arose. First, there was a missed opportunity at the beginning of the lesson to elicit student hypotheses before conducting the demonstration. Second, while teacher-guided dialogue successfully utilized academic language, peer-to-peer classroom interactions suffered when my direct supervision was removed. When stepping away to assist other groups, students like Sultan and Omar reverted to colloquial phrasing, describing the reaction as "breaking down into pieces."

Analysis

The success of anchoring the lesson in a review of synthesis reactions aligns with the principle that the most important single factor influencing learning is what the learner already knows. By explicitly activating this prior knowledge, a potential learning disconnect was avoided, allowing the new concept to be seamlessly integrated. Furthermore, the visual demonstration was highly effective because an important role of practical work is to help pupils develop links between observations and ideas. By pairing the observable bubbling of the hydrogen peroxide with the previously taught theoretical framework of chemical equations, the activity successfully linked the domain of observable objects and events with the domain of abstract ideas.

The contrast between the successful teacher-student dialogue and the challenging peer-to-peer interactions can be analyzed through the lens of metacognitive talk. Pupil-to-pupil and pupil-teacher talk can help to build knowledge and understanding of cognitive and metacognitive strategies. However, this dialogue needs to be purposeful, with teachers guiding and supporting the conversation to ensure it is challenging and builds on prior subject knowledge. While my direct formative dialogue effectively scaffolded their learning, the students' reversion to colloquial language indicates a lack of the "internal scaffolding" required to regulate their own scientific discourse independently. As discussed with Mr. Hatem, listening to learners piece together evidence in a group discussion provides plentiful and rich assessment data for teachers. This real-time, formative assessment was crucial in identifying the gap in their independent academic fluency.

Plan for the Future

To develop into a more effective educator, I must prioritize eliciting student knowledge before delivering new information. I will incorporate brief prior knowledge discussion questions at the start of future demonstrations to give students the opportunity to hypothesize, which provides valuable feedback to adjust the lesson's direction. To address the breakdown in peer-to-peer academic language, I plan to implement visual vocabulary scaffolds—such as structured talk cards or sentence starters—directly on the students' desks. This will support them in independently organizing and managing purposeful "learning talk" without requiring my constant presence. Finally, I will continue to explicitly integrate metacognitive strategies within

the subject content, recognizing that it is very hard for students to evaluate how best they can learn without a solid foundation in the subject knowledge itself.

References

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