

FEMSTEM

FEMSTEM TOOLKIT

SECTION 5 – GROW MODEL ACTIVITIES

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STIMŪLI

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Contents

| | |
|---|----|
| Introduction | 3 |
| GROW Model | 3 |
| Useful Tips in applying GROW in mentoring: | 4 |
| Scenario-based Activities using GROW | 6 |
| Ice-breakers | 6 |
| 1. STEM Passions Show-and-Tell | 6 |
| 2. STEM Skills Bingo | 7 |
| Scenario-based Activities | 8 |
| 3. Scenario: A Struggling Student with a Challenging Project | 8 |
| 4. Scenario: A Student Facing Time Management Issues in a STEM Course | 9 |
| 5. Scenario: A Student Lacking Confidence in a STEM Subject | 9 |
| 6. Scenario: A Group Project with Conflicting Team Members | 10 |
| 7. Scenario: Preparing for a STEM Competition | 10 |
| 8. Scenario: A Student Struggling with a Complex STEM Problem | 11 |
| 9. Scenario: A Student Unsure About Career Pathways in STEM | 12 |
| Further Helpful Resources: | 12 |

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Introduction

This activity sheet is part of the FEMSTEM ToolKit – Section 5. It comprises of **scenario-based activities** to **assist mentors** and educators to provide coaching and mentorship to female STEM students by using the GROW model. The GROW model is an effective framework for mentoring and coaching, particularly valuable in supporting students in STEM. GROW stands for **Goal, Reality, Options** and **Way** Forward. The model was originally developed in the 1980s by business coaches Graham Alexander, Alan Fine, and Sir John Whitmore. The two first activities of this document serve as an ice-breaker between mentors and mentees, while the rest of the activities aim to train essential skills needed in a STEM career, including time management, conflict management, self-confidence, project completion and more.

GROW Model

The G.R.O.W model is a simple approach for structuring mentoring and coaching sessions. It can be used for a number of situations and provides a framework for your conversations. Let's explore what the GROW model includes and some helpful tips in applying it in your coaching and mentoring.

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| G | Goal: The goal is the end point, where a person wants to be. The goal has to be defined in such a way that it is very clear when they have achieved it. |
| R | Reality: The current reality is where they are now. What are the issues and the challenges, how far are they away from their goal? |
| O | Obstacles: There will be obstacles stopping them from getting from where they are now to where they want to go. If there were no obstacles, they would already have reached their goal. |
| | Options: Once obstacles have been identified, they need to find ways of dealing with them if they are to make progress. These are the options. |
| W | Way Forward: The options then need to be converted into action steps which will take them to their goal. These are the way forward |



Useful Tips in applying GROW in mentoring:

Using the GROW model for mentoring or coaching can seem self-explanatory, however, it takes practice and essential skills to have a successful mentorship/coaching session. The top two essential skills are active listening and the art of asking the right questions. Here, we have included some useful tips and questions to help mentors structure their session using the GROW model.

1. Establishing the goal

Start by identifying what the mentee/coachee wants to change or do, and then structure it towards a goal. Sometimes, the mentee may find it difficult to set specific goals. This first step is the most important, as it establishes the cornerstone of the mentorship session, so be rigorous.

Remember, goals should be SMART:

- Specific – target a specific area for improvement.
- Measurable – quantify or at least suggest an indicator of progress.
- Achievable – what results can realistically be achieved, given available time and resources?
- Relevant – does the outcome address the issue under discussion?
- Time-based – when will the outcome be achieved?

Useful questions for Goal setting:

- What do you want to achieve?
- Where do you want to be in x years?
- What is your ideal picture of the future?
- What do you want to be different in six months?
- What do you want to be different by the end of today?
- Why are you seeking to achieve this goal?
- What will help you to achieve this goal?



2. Examine the current Reality

Ask the mentee or coachee to describe their current reality. Take this step slow and steady, allowing the mentee or coachee time to think and reflect. Through the discussion the solution may start to emerge. The mentor or coach will need to probe, asking further questions. It is likely that this is where most of the time is spent, and the mentor or coach must be prepared to ask further questions to ensure that all areas are explored.

Useful questions for examining current reality:

- What is happening now (what, who, when, and how often)?
- What is the effect or result of this?
- Have you already taken any steps towards your goal?
- Does this goal conflict with any other goals or objectives?

3. Explore the obstacles and options

Once you have discussed the current reality it is time to consider the possible obstacles and options. This is an opportunity to look at all the possibilities and to brainstorm all the options.

Useful questions for exploring obstacles/options:

- What choices do you have (to move towards your goal/s)?
- Which ones are in your control?
- What else can you do?
- What other options are there?
- What are the advantages and disadvantages of each option?
- What factors/considerations will you use to weigh the options?
- What do you need to stop doing to achieve this goal?
- What do you need to start doing to achieve this goal?
- What obstacles stand in your way?
- What will happen if you stay as you are?

4. Establish the way forward

Having examined the current reality and explored the options, the mentee or coachee will have a good idea of how she/he can achieve the goal. Now you need to get commitment to specific actions, to establish will and motivation.

Useful questions to establish the way forward:

- What will you do now, and when? What else will you do?
- When do you need to review progress? Daily, weekly, monthly?
- On a scale of 1 to 10 how likely are you to do what you say you will?
- What could be done to move this figure closer to 10?



Scenario-based Activities using GROW

Ice-breakers

These ice-breaking activities are designed to create a comfortable and engaging environment, setting the stage for more in-depth mentoring conversations using the GROW model.

1. *STEM Passions Show-and-Tell*

Scenario: Choosing STEM

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| Objective | Help the mentor and student connect by sharing their personal interests and passions in STEM, which can also help the student articulate their goals and inspirations. |
| Learning Outcome | This activity not only breaks the ice but also helps the mentor understand the student's motivations and interests, making it easier to guide them using the GROW model. |

Activity

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| Step 1 | Ask both the mentor and the student to bring an object, article, or even a short video that represents something they are passionate about in STEM. This could be anything from a favorite gadget, a piece of technology they admire, a scientific article, or a model of a concept they find fascinating. |
| Step 2 | Each person takes turns sharing why they chose that item and how it relates to their interest in STEM. Encourage them to talk about what inspired them to pursue STEM and how it connects to their goals. |
| Step 3 | After the sharing session, have a brief discussion about how their passions can help inform the student's approach to their current project. This conversation can naturally transition into the GROW model, starting with discussing the student's goals. |



2. STEM Skills Bingo

Scenario: Essential skills for STEM

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| Objective | Identify and acknowledge the student's strengths and challenges in a fun, interactive way, while also fostering a connection between the mentor and student. |
| Learning Outcome | The mentor will be able to identify areas where the student excels and where they might need support. The outcome will be a conversation about how certain skills or habits can impact the student's time management and overall success in their STEM studies and career. |

Activity

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| Step 1 | Create a bingo card with different STEM-related skills or habits listed in each square. Examples might include: "Good at coding," "Loves problem-solving," "Struggles with time management," "Has a favorite scientist," "Enjoys working in teams," "Prefers working alone," "Good at organizing tasks," etc. |
| Step 2 | Both the mentor and the student fill out their bingo cards by marking the squares that apply to them. They can either do this based on self-assessment or by discussing each item together |
| Step 3 | Once the cards are filled, compare notes. The mentor can ask the student to share more about the skills or habits they marked, especially focusing on those related to time management and study habits. This can lead into a discussion about the "Reality" and "Options" phases of the GROW model. |



Scenario-based Activities

Each of these scenarios provides a practical, structured way for mentors to support students in STEM using the GROW model. By focusing on the students' goals, assessing their current reality, exploring possible options, and deciding on a way forward, mentors can effectively guide students through challenges and help them achieve success in their STEM endeavors.

3. Scenario: A Struggling Student with a Challenging Project

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| Objective | Identify and acknowledge clear, achievable objectives for a challenging STEM project using the GROW model. |
| Learning Outcome | The student will be able to identify smaller, manageable tasks, sets milestones, and gain confidence in approaching a project. |

Activity

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| Scenario | The student has been assigned a complex project, such as designing a small-scale renewable energy model, but is overwhelmed and unsure where to start. |
| Mentor | Use the GROW model to guide the student. Begin by asking the student what they want to achieve with this project (Goal). Discuss their current understanding and any challenges they're facing (Reality). Explore different approaches they could take to complete the project (Options). Finally, help them decide on the next steps (Way Forward). |



4. Scenario: A Student Facing Time Management Issues in a STEM Course

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| Objective | To improve time management skills to successfully complete coursework on time. |
| Learning Outcome | The student adopts new time management techniques, leading to improved performance and reduced stress. |

Activity

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| Scenario | The student is struggling to keep up with the demands of a rigorous STEM course while balancing other classes and extracurricular activities. |
| Mentor | Ask the student to articulate what they want to achieve in terms of their academic performance (Goal). Discuss their current time management practices and identify where they are facing difficulties (Reality). Brainstorm different strategies for better time management, such as prioritizing tasks, using a planner, or breaking work into smaller chunks (Options). Encourage the student to choose one or two strategies to implement and follow up with them on progress (Way Forward). |

5. Scenario: A Student Lacking Confidence in a STEM Subject

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| Objective | To overcome self-doubt and improve performance and self-confidence in a STEM subject. |
| Learning Outcome | The student begins to see improvement through small successes, leading to increased confidence and a renewed commitment to the course. |

Activity

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| Scenario | The student feels inadequate in a challenging STEM course, such as advanced mathematics, and is considering dropping it. |
| Mentor | Start by understanding the student's goals related to the course—whether they want to pass, excel, or simply build competence (Goal). Discuss their current performance, study habits, and any specific challenges they face (Reality). Explore options such as tutoring, study groups, or alternative study techniques (Options). Work with the student to set small, achievable goals to build their confidence over time (Way Forward). |



6. Scenario: A Group Project with Conflicting Team Members

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| Objective | To successfully collaborate with peers to complete a group project and gain insights into conflict management that might arise in group settings. |
| Learning Outcome | The group develops a strategy for better collaboration, leading to a successful project outcome |

Activity

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| Scenario | The student feels inadequate in a challenging STEM course, such as advanced mathematics, and is considering dropping it. |
| Mentor | Start by understanding the student's goals related to the course—whether they want to pass, excel, or simply build competence (Goal). Discuss their current performance, study habits, and any specific challenges they face (Reality). Explore options such as tutoring, study groups, or alternative study techniques (Options). Work with the student to set small, achievable goals to build their confidence over time (Way Forward). |

7. Scenario: Preparing for a STEM Competition

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| Objective | To help the student prepare effectively for an upcoming STEM competition, by performing well and gaining valuable experience in the competition. |
| Learning Outcome | The student feels more prepared and confident, increasing their chances of success in the competition. |

Activity

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| Scenario | The student is preparing for a regional science fair or a robotics competition but feels unsure about how to prepare effectively. |
| Mentor | Start by discussing what the student wants to achieve in the competition (Goal). Assess their current preparation level, strengths, and areas that need improvement (Reality). Explore options for preparation, such as refining their project, practicing their presentation, or seeking feedback from peers or teachers (Options). Work with the student to create a preparation plan with specific actions and timelines (Way Forward). |



8. Scenario: A Student Struggling with a Complex STEM Problem

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| Objective | To help the student solve a complex problem and understand the underlying concepts. |
| Learning Outcome | The student develops a structured approach to problem-solving that they can apply not just to this problem but to future STEM challenges. They also gain confidence in their ability to tackle complex issues systematically. |

Activity

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| Scenario | The student is stuck on a particularly challenging problem, such as a difficult calculus problem, a complex coding bug, or a challenging physics concept. They've tried various approaches but can't seem to find the solution. |
| Mentor | <p>Start by asking the student what their specific goal is with this problem. Do they want to just get the right answer, or do they want to deeply understand the concepts involved? (Goal) Discuss the current situation. What approaches has the student already tried? What resources have they used? Where exactly are they getting stuck? (Reality) Explore different strategies the student could try. For example, they might approach the problem from a different angle, break it down into smaller parts, or use additional resources like textbooks, online tutorials, or simulations. (Options) Once several options are on the table, help the student choose the best approach to try first. Create a step-by-step plan, including what to do if they encounter further difficulties. (Way Forward)</p> |

9. Scenario: A Student Unsure About Career Pathways in STEM

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| Objective | To help the student gain clarity on future career options in STEM. |
| Learning Outcome | The student gains a clearer understanding of potential career paths and develops a plan to explore them further. |

Activity

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| Scenario | The student enjoys STEM subjects but is unsure which career path to pursue, feeling overwhelmed by the variety of options (e.g., engineering, data science, research, etc.). |
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Mentor

Begin by asking the student about their long-term goals and what they hope to achieve in their career (Goal). Discuss their current skills, interests, and any career research they've already done (Reality). Explore different STEM careers, the required skills, and possible educational pathways (Options). Help the student create a plan for further exploration, such as shadowing professionals or attending workshops (Way Forward).

Further Helpful Resources:

<https://www.youtube.com/watch?v=D7U0p-Jlqcw>
(Video how to apply GROW model)

<https://ccpfc.org/wp-content/uploads/2021/09/The-GROW-Model-infographic-sir-john-whitmore-performance-consultants.pdf>
(An infographic on GROW model)

<https://cms.scouts.org.uk/media/11741/session-6-the-grow-model.pdf>
(A useful guide for trainers on using GROW model)