

THE DEVELOPMENT OF A GAME-BASED LEARNING ENVIRONMENT TO PROMOTE SCIENCE LITERACY



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PURPOSE

MISSIONS WITH MONTY is a game-based learning environment focused on improving 5th graders' science literacy by targeting **comprehension-monitoring skills** for informational texts.

The program, promotes **self-regulated learning** addressing strategic, metacognitive, and motivational constructs. Targeted skills include highlighting, summarization, metacognitive monitoring, and multiple source comprehension.

There are three key curricular units that align with state and national science standards:

- ❑ **Ecosystems**
- ❑ **Earth and Human Activity**
- ❑ **From Molecules to Organisms**

The primary pedagogical agent, **Monty**, a **monitor lizard** and accompanying animal characters will provide training and scaffolding to promote science knowledge, strategy use, and motivation within a narrative framework.



MISSIONS



The program will deliver "missions" built in a framework that is scalable for the comprehensive 5th grade curriculum.

The missions represent research camps in the **rainforest**, **ocean**, and **savanna**. Missions are comprised of a series of mini-games clustered by content-related texts and led by character researchers.

Players visit a number of different animal scientists in their natural environment and complete missions by applying the skills introduced during the training camp. Missions can be completed after obtaining a threshold level of performance on:

- **strategies (highlighting and summarization)**
- **content knowledge (performance on passage items)**
- **monitoring accuracy judgments on knowledge items**
- **multiple-source comprehension items**

Players complete the game through two argumentation-based mini-Missions to save 1) **Wildlife University** and 2) **Monty**



GAME NARRATIVE



The player fills the role of a promising young science professor traveling to work with **Monty** a world-renowned scientist known for his ability to solve real-life problems.

Monty has created **Wildlife University (WU)** in a remote rainforest. The students and professors at WU are different animals focused on becoming more scientifically literate in order to save their natural habitats. Upon arrival at WU the player realizes that

- 1) Monty has gone missing and
- 2) WU has been recently closed due to animals getting sick.



The player is provided with the challenge of undertaking a series of missions to save Monty to determine the cause of the sickness.

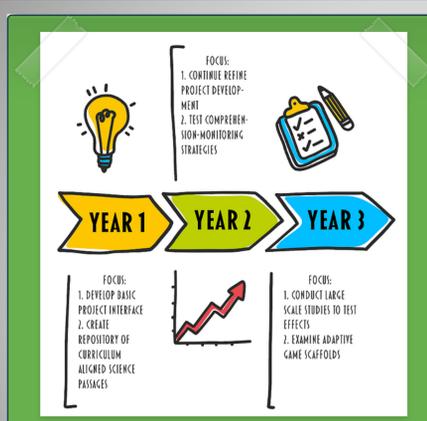
TEXT INTERACTIONS

Characters present texts showing their research that vary both in length and structure as some will be topical and informative and others will show results from ongoing research that require interpretation of data, charts, and graphs. Each of the text interactions within the mini-games will have the students:

- Read a text presented by a character and attempt to highlight main ideas.
- Engage in a **Highlighting Challenge** where player highlights are matched against expert highlights.
- Engage in a **Knowledge Challenge** answering multiple-choice content items.
- Engage in a **Summary Challenge** attempting to identify the best summary from an expert-generated list.
- Engage in a **Monitoring Challenge** where students provide confidence judgments.



PROJECT GOALS



FUTURE:

- ❑ Multi-user, multi-site collaboration
- ❑ International versions
- ❑ Diverse age groups
- ❑ Increased focus on writing
- ❑ Increased classroom integration

- Reflect on metered feedback from the Challenges. If attaining passing thresholds for each meter the mini-game character provides one final **Multiple Source Challenge**.
- Engage in a final series of multiple-source questions presented by the Mission lead researcher that function as the gateway to mastery of the Mission.