Engaging inquiry-based strategies include digital imagery that “stimulates” learners and exploits their curiosity while they are learning. As learners participate in engaging experiences and activities, positive outcomes are produced because they are familiar with and have an affinity for digital devices. Therefore, the power to understand, develop and pursue content across the sciences is increased. Including authentic, real and relevant digital imagery within inquiry-based strategies will truly provide teachers with a phenomenal way to deal with the “device-aware” learner and bring concepts and vocabulary alive as lessons, projects, assignments, and activities are undertaken.

In this issue, we link a DIIMSA Climate Crisis - First-Hand Research Excursion to DIIMSA Pics-Fair as a vehicle to stimulate learners to perform research in their own communities.

Barbara Foots

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Creating Experiences and Checking for Understanding using DIIMSA Pics-Fair

Vocabulary in curriculums should be a major focus and link to real and relevant content because terminology ultimately sets the foundation for learning. If students do not truly understand vocabulary, then teaching specific objectives for the “Big Idea” becomes incredibly difficult as students get muddled in trying to memorize words, while not truly understanding how to apply them. So how do we teach so called “curriculum required vocabulary” to digital learners as a true experience? One way is to use engaging inquiry-based strategies that integrate technology that learners can relate to, such as DIIMSA Pics-Fair. DIIMSA Pics-Fair is a topic- or concept-to-picture Instructional Assignment that provides a way for students to “let the camera drive the content” as they explore and research science in their own communities.

The primary goal of DIIMSA Pics-Fair is to allow students to make connections to their learning in a different context by using authentic images they capture. Students will learn how to analyze and research their selected topic or concept by using a dynamically captured digital image that directly relates to it. Using DIIMSA Pics-Fair, students will gain the ability to conduct scientific research; define research questions; write concise and accurate summaries about their captured content; engage in peer review to exchange constructive criticism of data and interpretations; and use feedback to justify their presentations.

DIIMSA Pics-Fair provides an innovative approach for teachers and facilitators to integrate science and literacy as they guide learners in producing works that are supported with a clear, concise summary, supporting vocabulary, linked concepts and a related hypothesis. Global climate change is a great issue to use as an assignment, activity or project.

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Jack Rhodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Level:</td>
<td>10</td>
</tr>
<tr>
<td>Class:</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Location:</td>
<td>Spillway Site</td>
</tr>
</tbody>
</table>

Title: Locking Oxidation

Hypothesis: If certain metals are exposed to the elements (air, water), then oxidation and corrosion will occur.

Vocabulary and Concept Connections: bond, chemical change, corrosion, dissolved, electrochemical, electron, element, iron, metal, minerals, oxidation, oxide, oxidizing agent, reducing agent, substance.

In this picture, rust can be observed on various metal structures. Rust is the corrosion effect when certain metals such as iron are exposed to oxygen and water (or air moisture) for a prolonged time. Iron rusting is a classic example of a chemical change because a new substance is formed and it cannot be changed back to its original state. The reaction is the formation of iron and oxygen yielding an iron oxide (iron (III) oxide, \( \text{Fe}_2\text{O}_3 \)). This electrochemical process occurs with the exchange of electrons between iron (reducing agent, loses electrons) and oxygen (oxidizing agent, gains electrons).

Some metals (e.g., bronze, copper) oxidize but form a protective layer of corrosion called…

Excerpt from Student Assignment
Technology as a Tool during Research and Review

During the profiled Climate Crisis Research Excursion in Alaska, researchers observed varying geologic structures across habitats.

As depicted in the diagram, a full-frame 35mm professional digital camera was used to capture scenes near a calving glacier. As researchers captured these scenes, varying angles and close-up shots were taken in an attempt to get the “perfect shot.” Even floating icebergs were included to show how glacial ice contributes to the surrounding saltwater habitats from the impacts of the climate crisis. Once captured these files were uploaded to DIIMSA Stock (a digital content repository) for access by all.

A profiled DIIMSA Pic-Fair assignment allows students to be their own researcher and capture scenes based on their context of understanding. Students can then perform research across STEM fields as they investigate areas within the image. This makes the facilitation of this strategy easy and provides flexible implementation options.
The Global Climate Crisis, First-Hand - Alaska

According to the National Park Service (NPS), “climate is a fundamental driver of ecology and Alaska’s climate is influenced by the oceans and sea ice, its high latitude, major mountain ranges and elevation, and continentality in the interior.”

Climate change is occurring faster in high-latitude regions due to **Arctic amplification** – the positive feedback effects that spur further warming of the climate. A good example is sea ice. Sea ice reflects the sun’s rays back into space, reflecting more heat than it absorbs, which helps keep the planet cool. As sea ice decreases, more open ocean absorbs more heat from the sun, and as the ocean absorbs more heat, more ice melts.

This causes various impacts including increases in the erosion of the Arctic coastline and Warmer oceans. Warmer oceans are a major concern as there is a cause-effect relationship. Effects range from the frequency and severity of storms to being more conducive to algal blooms.  *Source(s):* NPS.gov, USGS.gov.

The impact of climate can easily be tracked in environments where glaciers have been present for years. Additional impacts can easily be seen as natural disasters start to impact communities across the globe.

**ICEBERG (DIIMSA-EXPERT Content Collection: Vocabulary (A-Z))**

Iceberg. Location: Tracy Arm Fjord - Alaska.

*Source: DIIMSA Stock (Diimsa.com)*

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Glacial Ice

In this scene, glacial ice is floating in a fjord. A mammal can also be seen on an iceberg. Apply the vocabulary terms listed below to this area. Justify your responses.

<table>
<thead>
<tr>
<th>Amalgamation</th>
<th>Friction</th>
<th>Contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUSE-EFFECT</td>
<td>Evapotranspiration</td>
<td>Volatile</td>
</tr>
</tbody>
</table>
Do you agree or disagree with the concept connections below? Justify and include additional concepts that will extend and enrich discussions.

Kayakers and Glaciers

Kayakers using paddles to keep kayaks in EQUILIBRIUM. Location: Tracy Arm Fjord - Alaska.

Glacier about to calve illustrating potential ENERGY. Location: Tracy Arm Fjord - Alaska.

Source: DIIMSA Stock (Diimsa.com)
Question: “I noticed you all have a photo and video stock site that is a part of your Professional Development and Special Projects option. I always thought that I could just download images from the internet. Why do you have this image and video site? What is the purpose if images and video are free on the internet?”

Answer: I am glad you made this observation! DIIMSA Stock is the overall encompassing site for districts, institutions, universities, textbook publishers, news organizations, corporations and non-profit organizations. DIIMSA Stock content adheres to the following criteria: reliable, rights managed, secure, virus free, high-quality imagery, suitable for viewing by general public and all content copyrighted by DIIMSA researchers. DIIMSA-EXPERT (an integral part of DIIMSA Stock) is the fee-based curriculum framework site for our contracts with K-12 schools and higher education institutions. Teachers and facilitators can download images, video clips and activities based on their subscription level. DIIMSA-EXPERT content is organized and designed for this purpose.

Just remember that imagery has rights to use and copyright restrictions, and you may be in violation if you do not purchase or have permission to use images that are not your own.

DIIMSA Stock and DIIMSA-EXPERT

DIIMSA Stock is a unique stock imagery site that has the most diverse set of high-resolution imagery available in one rights-managed source on the Internet across corporate, industrial and academic spaces. All images and video clips have a connection to the “why” behind the scenes and are natural and authentic.

As an integral part of DIIMSA Stock, DIIMSA-EXPERT is a unique content resource designed to assist teachers and facilitators during instruction. Content collections are real, relevant and integrated with open-ended questions, crosscutting concepts and academic vocabulary. DIIMSA activities, methods and strategies are easily accessible in a knowledge base area. DIIMSA-EXPERT aids teachers and facilitators in their far-reaching quest to “Check for Understanding” and “Create Experiences” for learners.


Getting Started – DIIMSA Guidesets

Facilitators, teachers and administrators highly recommend DIIMSA Guidesets as a way to get started using the DIIMSA instructional framework. Learn More: http://visualrealization.com/content/diimsa-resources/

Contact Us

For comments/ideas send an email to: info@diimsa.com