Embedded Assessments (EA) Activities:

- Integrated into the learning experience
- Allowing learners to demonstrate competency around a specific skill
- Valuable in informal learning contexts such as citizen science where assessment is uncommon (Stylianski et al. 2019)

We are working across the citizen science landscape to develop, validate, and field-test methodologically rigorous processes, which result in assessments that are:
- Embedded,
- Authentic to projects,
- Performance-based, and
- Broadly applicable.

What are the Benefits of Embedded Assessment?

- Embedded assessments allow learners to demonstrate their competency through authentic tasks that integrate seamlessly into the learning experience (e.g., test presented as a game).
- They are not an added burden for volunteers.
- They can be performance-based activities that mirror real-life problem-solving situations.
- They can encourage project leaders to reflect on their training of targeted skills.

Reflection questions for you!

- How could EAs be useful and challenging in your work?
- How is our assessment development process contextually relevant to your work?
- How can the example EA (or others) be applied to other projects?

Streamline Embedded Assessment

We are collaborating with 10 citizen science project leaders to develop and use EAs to assess their volunteers’ science inquiry skills. The process includes:

- Defining relevant science skills,
- Co-create assessments of those skills using our EA Development Process (Peterman et al., 2017),
- Pilot the EAs with project volunteers, and
- Validating the EAs through expert review of content and think-alouds.

Sample EA

What type of bee is this?
- Honey bee
- Carpenter bee
- Bumble bee
- Other:

What features of the bee did you use to decide the type?

Please fill in as many relevant features as you can identify.

Feature 1:_________________________________
Feature 2: ___________________________________
Feature 3:_________________________________

WHAT do you notice about the color pattern and body shape, etc.? Or if you notice the color pattern, body shape, etc., what do you notice about the wings (e.g. 2 wings, 4 wings, minimum 2).

When providing details about the features please be as specific as possible about how each feature differentiates the bee from other bees. For example, if you notice the wings, what do you notice about the wings (e.g., wings, width, etc.). If you notice the color patterns, body shape, etc., what do you notice about the color patterns and body shapes?

Relevant features: Distinguishing bee species features from each other (e.g., hair, color pattern, body shape, pollen-carrying structures, size)

Instrument: A written survey embedded into the BeeSpotter training that asks volunteers if the organism in a provided photo is a bee or some other insect, and asks how they know that; it also asks volunteers to identify the species of bee, and asks how they knew that.

Scoring: Based on whether volunteers’ correctly identified the bee and the species, and which features they used to make these decisions.

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