

APPENDIX A: OBSERVATION PROTOCOL

INGENUITY LAB OBSERVATION PROTOCOL

| Date: | Activity: | | Facilitator: | | | | |
|------------------------|-------------------------|--------------------|-----------------|-------|-------|-------|-----|
| | Number in group: | Group Type: | School Family | | | | |
| Age and Gender: | <7 | 8-12 | 13-17 | 18-21 | 22-35 | 36-50 | 50+ |
| START TIME: | END TIME: | | OBSERVER | | | | |

Activity Completion

1. Playing. Visitor plays with the manipulatives, but does not do the activity as intended.
2. Partial Completion. Visitor partially completes the activity.
3. Full Completion. Visitor fully completes the activity.
4. Goes Beyond Activity. Visitors completes activity and takes it further.

Level of Engagement

1. Low. Visitor makes cursory stop with minimal engagement with activities (e.g. sitting down, talking with facilitator &/or quickly touch manipulatives).
2. Moderate, low. Visitor engages with facilitator or focuses on activities, but with low interest (e.g. tries the activity, but may not complete).
3. Moderate, high. Visitor engages with facilitator or activity, but with medium interest (e.g. “goes through the motion” to do activity, but does not take further).
4. High. Visitor fully engaged with facilitator &/or activities (e.g. dem onstrates prolonged engagement with the activity, appearance of directed focus or discussion related to activity, actively completes the activity, repeats it multiple times or does related activity).

Level of Facilitation

1. No interaction between facilitator and visitor
2. Facilitator provides an introduction to the activity and visitor completes it on their own
3. Facilitator provides minimal facilitation (answers visitor questions, offers minor suggestions)

4. Facilitator provides extensive facilitation (guides visitor through process, engages in extended dialogue with visitor)

Affect

(Which of the following emotions, if any, do visitors show as they participate in the activity? Check all that apply. Please note your observations & impressions.

- a. displeasure _____
- b. frustration _____
- c. confusion _____
- d. neutral _____
- e. surprise _____
- f. intrigue/interest _____
- g. excitement _____
- h. pleasure _____

Behavior (-, /, +) Indicate if facilitator initiated

- Describes/identifies a problem to be solved (finding flaws)
- Expresses a design goal (“I want it to...”)
- Describes one or more options for achieving goal (brainstorming)
- Sketches design
- Selects appropriate materials from available options
- Makes causal inference/predictions about how design will perform
- Explores materials and variables (without designing)
- Manipulates variables to achieve goal (building, creating)
- Collaborates with others on design
- Creates innovative design (creates unusual design compared to typical designs by visitors)
- Tests design
- Modifies design to make improvements
- Tests revised design
- Compares two (or more) designs
- Discusses what works, what doesn’t, or what could be improved
- Discuss how this activity relates to the real world, real engineers, etc.

NOTES: