

\*\* Introduction \*\*

Hello, my name is Craig Miller. First, I need to actually read these instructions, rather than just telling them to you, so that everyone in the experiment gets the same information.

[insert EFH demo here]

I will observe you playing Electric Field Hockey in order to understand how people learn from inter-active software. We need to have your consent for you to participate in this session and to get paid. Please read this form and sign it if you agree with what it says.

Have you played Electric Field Hockey before? Have you talked with anyone about playing Electric Field Hockey?

That's OK. \*\* else can't run session \*\*

\*\* present consent form \*\*

I also need to tell you that we'd like to have the camera "see" the screen. If you start moving to the left, I might ask you to move back so that the camera stays on the screen.

\*\* if subject is too far to the left \*\* Could you slide over a little to the right? That's good.

We have found that we get a great deal of information from these observations if we ask people to think aloud as they work. All you have to do is speak your thoughts as you work. It may be a bit awkward at first, but it's really very easy once you get used to it. Basically, we'd like any thought that comes into your head to come out your mouth! If you forget to think aloud, I will remind you to keep talking.

\*\* multiplication problem \*\*

Just to practice speaking aloud, could you multiply 37 and 41 in your head? Just say whatever you're thinking! Just do the best you can.

[If subject becomes quiet]

1. I'd like to hear what you're thinking.
2. If you could just say whatever words come to your mind...
3. Please speak up.

OK, now you can start our main task.

You will be completing the computer portion of Electric Field Hockey assignment.

Just to remind you, your participation is totally voluntary. If for any reason you start to

feel uncomfortable, you can stop at any time. Most everyone has some difficulties playing, so if you do, you shouldn't feel bad. Understanding the game's difficulties is very useful to us anyway.

First I ask you to run through the instructions for the game.

\*\* if hesitation \*\* Just press begin to start instructions.

\*\* when finished with instructions \*\*

Now you will start at level one. For the next hour, I ask you to play through level 5. I am free to give you help operating the game, but I will only offer strategic help if you seem to be stuck for an extended period of time.

It's possible you won't have finished level 5 in an hour, and that's OK. At that point, I would like you to stop and have you answer some questions. There should be some free time afterward in case you'd like to finish your assignment here.

\*\*\* prompts for helping with play \*\*\*

Just moving a charge will allow you to try again.

There's no penalty for moving charges and trying again.

When the goal turns black, it means you've scored the goal.

Press NEW to move to the next level.

\*\*\* hints, if after 10 minutes at one level \*\*\*

I could give you a hint if you'd like one:

- 1) Try starting over using fewer charges.
- 2) Try only adjusting one charge at a time.
- 3) Try starting the ball by placing a charge behind it.
- 4) Try adjusting the distance of the initial charge behind the ball.

\*\*\* if finished level 5 \*\*\*

OK you've completed level 5. You can now finish the computer portion of your assignment.

\*\*\* if after one hour \*\*\*

At this point, I would like you to stop and have you answer some questions. There should be some free time afterward in case you'd like to finish your assignment here.

\*\*\* help with printouts, etc. \*\*\*

For the next 5 to 10 minutes, I'll need to prepare some printouts. In the meantime, I'd like you to fill out this questionnaire. after which, I'll have one more task for you. If you have anything you want to ask about the questionnaire, just let me know.

While I collect printouts, could I have you play level 6?

\*\*\* when finished with questionnaire \*\*\*

OK, I'm going to show you some game scenarios you encountered while playing EFH. I would like you, as best as you can, draw in the trajectory that you were *planning* when you saw this situation. For example, in this simple situation, you would probably draw this line. [show level 0 example]

Now, I'd like you to do the same thing, but this time the diagrams also show where you placed charges. [show legend describing symbols] These diagrams show where you had placed charges, both current and previous placements. Some also show where the previous trajectory was. You can refer to this legend if you have difficulties understanding what these object symbols mean. Again, I'd like you, as best as you can, draw in the trajectory that you were *planning* when you saw this situation.

\*\* issue debriefing statement \*\*

Please don't discuss the details of this session with anyone for the next week. Otherwise, we won't be able to use them in the experiment. You can say that you participated in an experiment where you played EFH, but don't talk about how you played it.

\*\* answer any outstanding questions \*\*