Inq-ITS helps middle school students hone their authentic scientific inquiry skills via immediate personalized help as they work. Simultaneously, educators get real-time, actionable data on their students' performance so they can tailor instruction.

Overview

Inq-ITS (INQuiry Intelligent Tutoring System) is an online educational environment for science. Students conduct inquiry using virtual lab simulations aligned with NGSS standards for Physical Science, Life Science, and Earth Science; the system hones students’ scientific inquiry skills and provides educators immediate formative metrics on their students on these skills. Unlike other online labs, Inq-ITS uses computer science-based algorithms that automatically assess and tutor students’ authentic inquiry skills including hypothesizing, experimenting, and analyzing data. Help is given by a pedagogical agent, a cartoon figure that jumps in support when it detects a student is off-track. The system generates reports for educators on each inquiry skill, summarizing individual student and classroom-wide performance. In brief, while students “show what they know”, educators get real-time, actionable data they can use to tailor their instruction.

0 Inquiry starts by forming a testable hypothesis

All Inq-ITS activities have a similar look-and-feel to guide students through the inquiry process: hypothesizing, collecting data, analyzing their data, and communicating

1 Students design and run their own experiments, collecting data to test their hypothesis

Inq-ITS uses data-mined models to determine when students do not design controlled experiments or collect data to test their hypotheses, important inquiry skills.
Inq-ITS

... Digital formative assessments that help students learn science inquiry skills.

AN APPRENDIS & WPI PRODUCT

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Inq-ITS 2.0

A new version of Inq-ITS is coming! Version 2.0 has a fresh new look; it is built in HTML5 and will be able to run on more platforms like iPad; and it includes mobile alerts for teachers.

About Us

The Inq-ITS project began in 2007 under the direction of Dr. Janice Gobert, Co-Director of WPI’s Learning Sciences & Technologies program. The project has received over $10M in funding from the NSF and the U.S. Department of Education for on-going research with Inq-ITS. Led by Dr. Janice D. Gobert, this group is the first to provide automated, real-time assessment and scaffolding of inquiry skills by blending and extending techniques from the fields of Educational Data Mining, Cognitive Science, and Learning Science. Apprendis LLC is a spin off company co-founded by Janice Gobert, Michael Sao Pedro and Cameron Betts. Apprendis is being incubated by WPI’s Office of Technology Transfer and School of Business, whose flagship product is the Inq-ITS environment for teachers and students.

Publications


Contact

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LEFT: A sample report - as students improve their skills they move from yellow (low skill), to blue, and finally to dark blue (highly skilled).

4 Real-time alerts help educators focus their efforts when and where it matters most

Since timely feedback is critical to deep learning, a mobile alert system is being developed for teachers’ smartphones and tablets so they will always know who needs help the most, and on which specific inquiry skills.

3 Automatic assessment reports allow educators to see trends in their classroom and identify struggling students

Inq-ITS’ real-time assessment enables teachers to quickly tell how the class is progressing, and how each individual student is progressing, on each inquiry skill and sub-skill.