

## Electronic Sentences<sup>®</sup>

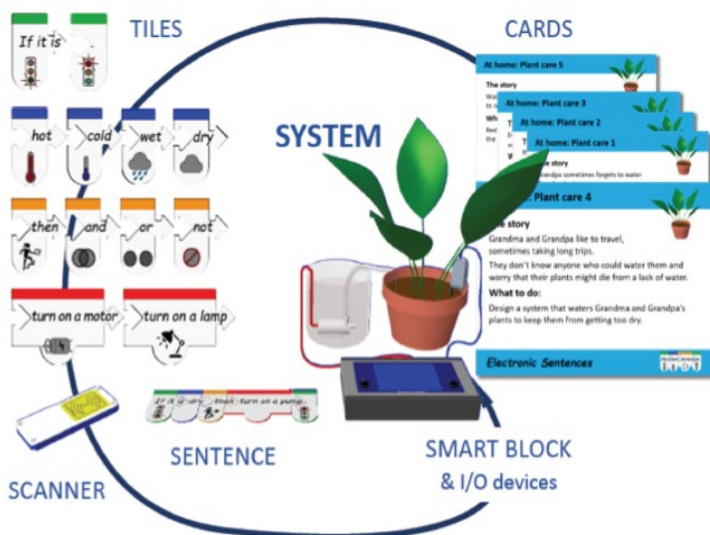
### A New Hands-on Pre-Coding and Digital Control Approach for K-3+ Pupils

(Helping teachers provide age-appropriate, practical, physical-computing activities that set a foundation for career readiness, life literacies, & key skills for children)

**Workshop Description:** A new digital *Electronic Sentences<sup>®</sup> System* for teachers to help K-3 pupils develop language and computer skills by assembling control systems to solve a series of fun challenges. Duration: One day, 6 hours contact time and two, 2-hour after-school, Zoom sessions in the Fall  
Schedule: Tuesday, July 19, 9:00am – 2:00pm (*Fall Zoom sessions to be determined with participants*)  
Location: William Annin Middle School, 70 Quincy Rd, Basking Ridge, NJ 07920

**Program Outline:** The program will attempt to determine the relative success the participants have in (1) using the ES<sup>®</sup> System to control a selection of devices, and (2) designing and making additional devices to be controlled by the ES<sup>®</sup> System. The ES<sup>®</sup> System is designed to support teachers in providing pupils age-appropriate STEM Design Challenges that use a set of “language” tiles, a digital system-controller Smart Block and a selection of input and output (I/O) devices. The participants will also be introduced to well-established approaches for engaging young learners in designing and making devices that can be controlled by the ES<sup>®</sup> System.

This initial pilot-testing will survey the teachers to determine their level of comfort to engage young learners in solving age-appropriate, real-life problems by designing and making control systems that actually work. Each of these working control systems, therefore, becomes a personal example of **‘physical computing’** related to a real-world application. The ES<sup>®</sup> System is designed to help children (a) engage in a progression of meaningful and practical activities, (b) acquire a set of design, making, problems-solving and collaborative skills, (c) develop language skills in an interactive environment, and (d) gain a sense of empowerment and an expanded vision of possibilities for changing their world through an Integrative STEM approach.



ES<sup>®</sup> System and its components

*Click on this link*  
[Electronic Sentences Resources Link](#)  
Access the **Electronic Sentences Sample Video**, and see the ES being used by a third grader.

*Return to this document*  
Close the ITEEA website by clicking on the red button at top-left corner.

A Glimpse of ES<sup>®</sup> in use

## Presenters:

**Frank Cappelle, Ed.D.** a Design, Engineering & Technology Teacher & Administrator, K-12 Teacher Educator, Technology Recreation Camp Director, and a Product and Patent Development Specialist.

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**Ron Todd, Ph.D.**, an ITEEA Fellow and Senior International Ambassador, currently serves as the Coordinator of the US/UK DE&T Collaborative Initiative Team that continue its work on developing the Electronic Sentences<sup>®</sup> System to help teachers use a DE&T approach to integrate and apply STEM subjects.

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## Consultants

**Tim Brotherhood**, a Design & Technology Consultant has extensive experience in teacher training and materials development across all ages of schooling while specializing in digital design and manufacture. [timbdesign@outlook.com](mailto:timbdesign@outlook.com)

**Torben Steeg**, a Design & Technology Teacher Educator specializing in Communications and electronics and links to and applications of science and mathematics.

[torben@steeg.co.uk](mailto:torben@steeg.co.uk)

## Facilitators:

**Bob Claymier**, Elementary STEM Resource person, specializing in integrating science and mathematics within STEM, and a Team Member of the US/UK Collaborative DE&T Initiative.

[bob@stemiselementary.com](mailto:bob@stemiselementary.com) & [www.stemiselementary.com](http://www.stemiselementary.com)

**Cliff Johnson**, a member of the US/UK DE&T Initiative Team, has combined technology with hands-on activities for grades 7-12 to enhance student problem solving, organizational and critical thinking skills. He taught video-technology in Fells School in Philadelphia and served as a resource person for K-6 teachers. [cliffells@me.com](mailto:cliffells@me.com)

**John Seymour**, a Team Member, US/UK Collaborative DE&T Initiative, established one of the first DE&T Labs in the US and was instrumental in creating the first DE&T challenge competition in Philadelphia. Served as a resource person and trainer for K-6 teachers in the NSF supported UPDATE Projects.

[jseymour.seymour4@gmail.com](mailto:jseymour.seymour4@gmail.com)

**Survey and Contact Information** Interested individuals should access the link below to complete and submit the survey, if not already submitted. If you have questions, send them

to Dr. Ron Todd, Coordinator of the US/UK DE&T Collaborative Initiative, at [<rdtodd1@mac.com>](mailto:rdtodd1@mac.com).

<https://forms.gle/JMiUnpVECdA1e7Hh8>