

# Outcomes covered by a Science Fair Project

## Grade 12 Physics

### **STSE**

117-7 – identify and describe science- and technology-based careers related to the science they are studying

### **Skills**

212-1 – identify questions to investigate that arise from practical problems and issues

212-2 – define and delimit problems to facilitate investigation

212-3 – design an experiment identifying and controlling major variables

212-4 – state a prediction and a hypothesis based on available evidence and background information

212-6 – design an experiment and identify specific variables

213-2 – carry out procedures controlling the major variables and adapting or extending procedures where required

213-3 – use instruments effectively and accurately for collecting data

213-5 – compile and organize data, using appropriate formats and data treatments to facilitate interpretation of the data

213-6 – use library and electronic research tools to collect information on a given topic

213-7 – select and integrate information from various print and electronic sources or from several parts of the same source

213-8 – select and use apparatus and materials safely

214-3 – compile and display evidence and information, by hand or computer, in a variety of formats, including diagrams, flow charts, tables, graphs, and scatter plots

214-5 – interpret patterns and trends in data, and infer or calculate linear and nonlinear relationships among variables

214-12 – explain how data support or refute the hypothesis or prediction

214-14 – construct and test a prototype of a device or system and troubleshoot problems as they arise

214-16 – evaluate a personally designed and constructed device on the basis of criteria they have developed themselves

215-1 – communicate questions, ideas and intentions and receive, interpret, understand, support, and respond to the ideas of others

215-2 – select and use appropriate numeric, symbolic, graphical, and linguistic modes of representation to communicate ideas, plans, and results

215-5 – develop, present, and defend a position or course of action, based on findings

### **Attitudes**

439 – Show a continuing and more informed curiosity and interest in science and science-related issues

440 – acquire, with interest and confidence, additional science knowledge and skills using a variety of resources and methods, including formal research

441 – consider further studies and careers in science and explore further science-and technology-related fields

442 – confidently evaluate evidence and consider alternative perspectives, ideas, and explanations

443 – use factual information and rational explanations when analyzing and evaluating

444 – value the processes for drawing conclusions

445 – work collaboratively in planning and carrying out investigations, as well as in generating and evaluating ideas