Skills Compétences Canada











CONTEST DESCRIPTION

Electronics

SECONDARY

SkillsCompétences Canada
Calgary2027

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1 THE SKILLS FOR SUCCESS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY

The Government of Canada has updated the previous Essential Skills framework to the new Skills for Success model in response to the evolving labour market and changing skill requirements. This model outlines nine fundamental skills Canadians need to thrive in work, education, training, and daily life.

Skills/Compétences Canada aims to highlight the importance of these skills, vital for success in trade and technology careers. Competitors can see how Skills for Success are integrated into contest descriptions, projects, and project documents. Recognizing these skills during the competition helps competitors match tasks with specific skills necessary for success and understand how these skills apply within their trade or technology programs and future careers.

The nine key Skills for Success, validated for workplace success, are:

1. Numeracy
2. Communication
3. Collaboration
4. Adaptability
5. Reading
6. Writing
7. Problem Solving
8. Creativity and Innovation
9. Digital

These Skills for Success are detailed in sections 2.4 and/or 3.2 (to be completed by SCC) of your Contest Description and, if relevant, in your Project and supporting documents.

2 CONTEST INTRODUCTION

2.1 Description of the associated work role(s) or occupation(s)

https://www.skillscompetencescanada.com/en/skill_area/electronics/

2.2 Purpose of the Challenge

To evaluate each competitor's skills and recognize outstanding students for excellence and professionalism in the field of Electronics Technology.

Competitors will demonstrate their skills in Electronics Technology as it pertains to Measurement, Printed Circuit Board Assembly, Fault Finding, Printer Circuit Board Rework, Circuit Analysis and Bread Board Techniques.

2.3 Duration of contest

10-12 hours

2.4 Skills and Knowledge to be tested.

The contest will cover the theoretical and practical aspects of current state of the art electronic industry standards. The competitor may be asked to demonstrate abilities in the following areas:

- Interpret electronic schematic diagrams, pictorials, manufacturers technical specifications and suppliers' catalogues.[5]
- Identify common electrical and electronic components. [7]
- Construct, analyze and troubleshoot DC circuits including series resistance, parallel resistance, series-parallel resistance and solid-state switching circuits.[7]
- Construct, analyze and troubleshoot AC circuits including capacitive, inductive and complex RLC circuits[7].
- Construct, analyze and troubleshoot analog circuits including diodes, transistor amplifiers, IC amplifiers, operational amplifiers and comparator circuits. [7]
- Construct, analyze and troubleshoot [7] digital circuits including TTL/CMOS gates, timers and optical devices[9].
- Apply the appropriate test procedures and equipment to a given situation[7]
- Interpret the observed values from the test equipment. (AC/DC voltages, currents and waveforms and circuit resistance)[1]
- Identify basic systems of analog to digital and digital to analog conversion[1]
- Answer questions related to basic electrical/electronic theory[5,7]

Skills for Success – [1]Numeracy, [5]Reading, [7]Problem Solving, [9]Digital

3 CONTEST DESCRIPTION

3.1 List of documents produced and timeline for when competitors have access to the documents on the Skills/Compétences Canada website

DOCUMENT	DATE OF DISTRIBUTION
Project	December 2026
Declaration of Major Components	February 2027

3.2 Tasks that may be performed during the contest.

- Hand - solder through-hole on a printed circuit board to acceptable industry standards.
- Hand – de solder through-hole on a printed circuit board.
- Assemble a circuit from a kit of parts PCB[7]
- Assemble a circuit from a kit of components on a breadboard.[7]
- Set-up and demonstrate use of common electronic measuring equipment including multimeters, power supplies, frequency generators and oscilloscopes.[1]
- Troubleshoot simple electronic circuits having a preinstalled fault and restore to working condition.[7]
- Complete circuit analysis on a simple electronic circuit which may include generating a schematic diagram.[9]

Skills for Success - [1]Numeracy, [7]Problem Solving, [9]Digital,

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided by Skills/Compétences Canada

- Circuit Board and Breadboard kits
- Scopemeter c/w accessories (minimum 40MHz)
- Digital Multimeter c/w test leads
- Power Supply Waveform Generator c/w BNC to alligator cables
- Lead Free Solder will be supplied.
- Flux removal solution.
- Project wire

4.2 Equipment and material provided by the competitor.

- Solder Iron suitable for use with no-lead solder types. Stand, Tip cleaner, tips of choice. Butane solder devices will not be allowed.
- De-Solder braid
- Three sets of test lead (i.e., banana to alligator, banana to banana and alligator to alligator).
- Power bar, 4 or more outlet (minimum 3’/1m or more cord length and must be CSA approved)
- Hand vacuum solder extractor (Non-heated)
- Flux (Pen, liquid, or paste)
- Long nose pliers
- Side Cutters
- Wire Stripper (Non- Automatic)
- Screwdrivers (including precision set)
- “Third Hand” including magnifying glass. (optional)
- Magnifier

- Safety Glasses
- Pens, Pencils, Eraser, Ruler
- 2 breadboards, minimum size each, 2”x 6” (wire will be supplied)
- Desk Lamp (can include with magnifier glass)
- Stand-alone calculator (non-programmable i.e., TI-30Xa)

4.2.1 Toolboxes Guidelines

One of the objectives of SCC is the sustainability of the Competition. As a result, the toolboxes brought by Competitors will be restricted to the following maximum specifications.

The Competitor toolbox must not exceed 0.128 meters^3 in volume. It can be multiple toolboxes, but the total of all toolboxes must not exceed the maximum volume indicated. There is no exception to this rule. If the Competitor toolbox is larger than what is indicated, the Competitor with the guidance of the NTC, will need to remove items from the toolbox and those items will not be used during the competition. All tools must fit inside one or more toolboxes. Tools outside of a toolbox will not be permitted.

4.3 Required clothing provided by the competitor.

- Competitors are to be dressed in a clean and safe manner (long pants and closed toe shoes)
- No jewelry on hands or wrists.

5 HEALTH AND SAFETY

5.1 Safety program

SCC has implemented a comprehensive safety program as health and safety is an integral part of our competitions. Our safety program includes guidelines and procedures to make the work environment in each skill area safer.

5.1.1 Safety manual

As part of our program a safety manual has been created to monitor and document health and safety within each skill area. It includes a definite plan of action designed to prevent accidents. The safety manual will be provided for every skill, and these instructions must be followed and respected by all participants and officials at the SCNC.

5.1.2 Safety workshop

During orientation, Competitors will participate in a Safety workshop and they will be expected to work and maintain a safe working area during the competition. Any Competitor breaking any health, safety, and environmental rules, may be required

to undertake a second safety workshop, this will not affect the Competitor's competition time.

5.2 List of required personal protective equipment (PPE) provided by Skills/Compétences Canada

- n/a

5.3 List of required personal protective equipment (PPE) provided by the competitor.

- Safety Glasses with side shields

Note: Competitors who do not have the required protective equipment will not be allowed to participate in the competition.

6 ASSESSMENT

6.1 Point breakdown

Note: This list is subject to change.

TASKS	/100
Assembly and Testing	25
Circuit Analysis	15
Bread boarding Technique	25
Measurement and Fault-Finding Technique	25
Rework	10

7 CONTEST SPECIFIC RULES

Contest specific rules cannot contradict or take priority over the Competition Rules. They do provide specific details and clarity in areas that may vary from contest to contest. Any additional contest rules will be reviewed during the competitor orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE
Safety	• Competitors must wear their safety glasses with side shields or goggles when soldering, de-soldering and circuit assembly. Failure to comply with this regulation may result in disqualification from the competition at the discretion of the National Technical Committee (NTC) members on site.
Use of technology - music	• Competitors are allowed to listen to music through headphones or earbuds but must be provided by a non-cellular network. The sessions

	where music is allowed will be determined by the NTC.
Tools/ Infrastructure	• Competitors are responsible to supply the afore mentioned tools and supplies. Failure to bring the required tools and supplies may result in competitor not being allowed to participate.

8 ADDITIONAL INFORMATION

8.1 Interpreter

If a competitor requires the help of an interpreter during the competition, the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this service may not be guaranteed.

8.2 Ties

- Tiebreaker #1: In the event of a tie, the competitor with the highest score in the Bread boarding project will be declared the winner.
- Tiebreaker #2: If a tie still exists the competitor with the highest mark in the Assembly and Testing project will be declare the winner.
- Tiebreaker #3: If a tie still exists the competitor with the highest mark in the Measurement and Fault-Finding project will be declared the winner.

8.3 Competition rules

Refer to the competition rules of the Skills Canada National Competition which can be found on our website.

9 NATIONAL TECHNICAL COMMITTEE MEMBERS

MEMBER ORGANIZATION	NAME
Newfoundland and Labrador	Kelly Spencer – Chair
Ontario	Randy Gallant
Manitoba	Courtney Dietrich
Saskatchewan	Craig Skihar
British Columbia	Adam Drake – Co-Chair
Nova Scotia	Frederick Boutilier

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Olga Malvine Rwemera (olgamr@skillscanada.com).