Skills Compétences Canada











CONTEST DESCRIPTION

Cloud Computing

POST-SECONDARY

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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:

- Numeracy
- Communication
- Collaboration
- Adaptability
- Reading
- Writing
- Problem Solving
- Creativity and Innovation
- 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

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

https://www.skillscompetencescanada.com/en/skill_area/cloud-computing/

1.2 Purpose of the Challenge

To evaluate each competitor's technical expertise, problem-solving ability, and professionalism in the design, deployment, and management of cloud-based infrastructure and applications across Amazon Web Services (AWS).

The competition recognizes excellence in real-world cloud computing practices, including scalability, automation, security, and performance optimization.

1.3 Duration of contest

12 hours

1.4 Skills and Knowledge to be tested.

- The competition evaluates a competitor's competence in the design and implementation of information technology infrastructure in a public cloud environment[7,9]
- The public cloud environment used is Amazon Web Services.

Skills for Success – [7]Problem Solving, [9]Digital

3 CONTEST DESCRIPTION

1.5 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

1.6 Tasks that may be performed during the contest

The Cloud Computing skill for the 2027 competition will span two full days, focusing on cloud-agnostic competencies through practical projects hosted on an AWS environment.

Competitors will complete two distinct projects each day. These challenges will test their ability to design, deploy, monitor, and secure AWS solutions that reflect real-world enterprise requirements.

Competitors are expected to have a working knowledge of cloud fundamentals, network administration, systems administration, and application/database deployment. The competition emphasizes both platform-specific expertise and core cloud architecture principles, making it ideal for students with backgrounds in IT infrastructure, systems engineering, DevOps, and cloud development.

1.6.1 Key Areas of Focus

- 1. Systems Design & Deployment [8, 9]
  - Competitors will be required to design and deploy scalable, modular applications in each cloud environment. Tasks will include:
  - Designing architecture with decoupled components (e.g., web servers, databases, storage)
  - Implementing infrastructure as code (IaC) using tools like **CloudFormation or CDK for AWS**

- Configuring virtual networks, application gateways/load balancers, and compute instances/services
- Deploying applications using managed PaaS services or container orchestration platforms

- 2. Network Design and Security [7, 9]
  - Competitors must demonstrate the ability to build secure, efficient network architectures that segment workloads and minimize exposure:
  - Creating and configuring **Virtual Private Cloud (VPC).**
  - Implementing public/private subnet models with proper routing and firewall rules
  - Using **Security Groups/NACLs** to enforce fine-grained access
  - Ensuring service communication is secured using private endpoints and role-based access
- 3. High Availability[7]
  - Applications must be designed for fault tolerance and resilience:
  - Distributing resources across **Availability Zones and Regions**
  - Implementing load balancing and automatic failover strategies
  - Incorporating managed database services with high availability features enabled (e.g., AWS RDS Multi-AZ)
- 4. Scalability[7]
  - Projects must dynamically adapt to variable workloads:
  - Implementing auto-scaling for virtual machines, app services, or container clusters
  - Designing stateless components and leveraging serverless functions where applicable
  - Ensuring the database and file storage can handle increasing traffic through configuration and resource scaling
- 5. Automation[7]
  - Automation is required across deployment and operations:
  - Infrastructure provisioning via IaC templates or pipelines
  - Continuous Integration/Continuous Delivery (CI/CD) pipelines using **AWS CodePipeline/CodeBuild**
  - Use of startup scripts, configuration management tools, or container orchestration for self-configuration
- 6. Security Best Practices
  - Security must be considered at every layer:
  - Implementing IAM policies, service roles, and identity federation correctly

- Encrypting data in transit and at rest
- Securing web applications with HTTPS, web application firewalls, and DDoS protection
- Ensuring least-privilege access and logging all security events

- 7. Monitoring and Observability
  - Modern cloud environments require active monitoring and insight:
  - Collecting and visualizing metrics via **Amazon CloudWatch**
  - Setting up alerts and dashboards to detect issues in real time
  - Using Application Performance Monitoring (APM) tools to trace requests and diagnose bottlenecks
  - Incorporating logs into event-driven automation or alerting workflows

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

4 EQUIPMENT, MATERIAL, CLOTHING

1.7 Equipment and material provided by Skills/Compétences Canada

- Table
- Chair
- Water Station
- Internet connection
- Monitor
- Keyboard
- Mouse

COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY SCC. ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA.

1.8 Equipment and material provided by the competitor

- Competitors are required to bring their own device and software. Each competitor can choose their own device so their workflow and process are to what they are familiar with.
- If competitors are bringing a computer or laptop from their school (instead of their personal computer), please ensure that the computer is unlocked so documents and possibly software can be saved/installed to the hard drive and technology support can be provided onsite. This may require access to CMOS settings.
- Minimum Recommended Hardware:
  - Wired Ethernet Connection or appropriate network adapter (ie. USB-C to Ethernet)
  - 8 GB of RAM

- 100 GB Storage
- Windows 11
- HDMI output or appropriate cabling

- Required software
  - Google Chrome
  - Putty
  - AWS CLI

1.9 Required clothing provided by the competitor

- No special requirements

5 HEALTH AND SAFETY

1.10 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.

1.10.1 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.

1.10.2 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.

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

- No PPE required

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

- No PPE required

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

6 ASSESSMENT

1.13 Point breakdown

Note: This list is subject to change.

TASKS	/100
Systems/Network Design	20
High Availability	20
Scalability	20
Automation (Deployment)	20
Security	20

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
Use of technology – USB, memory sticks – internet access	NTC Members – NTC Members are allowed to bring USB/memory sticks into the NTC Meeting Room. USB/memory sticks will be allowed to be taken outside of the meeting room at the end of each day. Competitors – Competitors are not allowed to bring USB/memory into the workshop. Competitors – Competitors can use public internet resources; private resources are not allowed (GitHub, Docker, Google Drive, etc.)
Use of technology – personal laptops	NTC Members – NTC Members are allowed to bring laptops into the NTC Meeting Room. Laptops will be allowed to be taken outside of the meeting room at the end of each day. Competitors – This is a bring your own device (BYOD) competition so the competitors can have their laptops and can take them with them after each day.
Use of technology – personal cameras	NTC Members – NTC Members are allowed to bring cameras into the NTC Meeting Room. Cameras will be allowed to be taken outside of the meeting room at the end of each day. Competitors – No cameras are allowed in the workshop until the completion of competition on day four.
Use of technology – mobile devices	NTC Members - No electronic devices are to be brought to any Competitors workstations under any circumstances unless with the approval

	Competitors – Electronic devices (Including mobile phones) must stay in Competitor bags (switched off or on silent) within the lockers provided. No electronic devices are to be brought to Competitor's workstations under any circumstances unless with the approval
Source file/notes	Competitors – No notes may be brought into the workshop under any circumstances. All notes made at the Competitor workstation must remain on the Competitors desk at all times. No notes may be taken outside of the workshop.
Equipment failure	Competitors – In the occurrence of equipment failure Competitors must notify a NTC member by raising their hand. The NTC Member will take note of the time that the Competitor is not able to make use of their equipment. Any time lost due to equipment failure will be provided to the Competitor at the end of the standard Module time. No additional time will be granted for work not saved prior to the equipment failure.

8 ADDITIONAL INFORMATION

1.14 Interpreter

If a competitor requires the help of an interpreter once onsite 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.

1.15 Ties

- Tiebreaker #1: Time duration to complete challenge
- Tiebreaker #2: Cost Efficiency
- Tiebreaker #3: Security best practices

1.16 Test Project change at the Competition

Where the Test Project has been circulated to Competitors in advance, NTC shall change a maximum of 30% of the work content. Please refer to the Competition Rules.

1.17 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	Richard Spencer – Chair
Quebec	Mathieu Bergeron-Legros – Co-Chair
Saskatchewan	Alex Wang
Ontario	Sasipriya Arun
New Brunswick	
British Columbia	Patrick Duffey

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