



## Science, Technology, Engineering, and Math (STEM) Skill Standards Checklist

Student Name.	School District
YA Coordinator	YA Consortium
High School Graduation Date	

### Certification Areas Completed:

#### Required Skills - For EACH Pathway

##### Check ✓ completed areas

- Core Skills
- Safety

#### Engineering & Technology Pathway

- Engineering Drafting Unit- REQUIRED FIRST
- Mechanical/Electrical Engineering Unit
- Civil Engineering Unit

#### Science & Math Pathway

- Bioscience Lab Foundations Unit- REQUIRED FIRST
- Bioscience Applications Unit

### Level One Requirements:

*Students must complete ALL listed below*

##### Check ✓ completed areas

- Required Skills
- Minimum of **ONE** Pathway Unit
- Minimum of 2 semesters related instruction
- Minimum of 450 work hours

### Level Two Requirements:

*Students must complete ALL listed below*

##### Check ✓ completed areas

- Required Skills for EACH pathway
- Minimum of **TWO** Pathway Units
- Minimum of 4 semesters related instruction
- Minimum of 900 work hours

Total Hours Employed	Company Name	Telephone Number
		( )
		( )

## Instructions for the Worksite Mentor(s) and Instructor(s)

The Skill Standards Checklist is a list of the competencies (tasks) to be achieved through mentoring and training at the worksite.

- The worksite mentor should rate each competency as the student acquires and demonstrates the skill **according to the performance criteria.**
- A competency may be revisited and the score raised as the student becomes more proficient at the worksite.
- The mentor and student should go over this checklist together on a regular basis to record progress and plan future steps to complete the required competencies.

**I certify** that this student has successfully completed the competencies required in my department. Circle your YA role, sign and print your name, and complete with the date signed and the department name.

***SIGN this page IF you have been a mentor, trainer, or instructor of this student***

Mentor/Trainer/Instructor Signature	Mentor/Trainer/Instructor Signature
Printed Name	Printed Name
Department	Department
Date Signed	Date Signed

Mentor/Trainer/Instructor Signature	Mentor/Trainer/Instructor Signature
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# Operational Program Notes for Skill Standards Checklist

## 1. Science, Technology, Engineering, and Math Youth Apprenticeship Curriculum

- Definitions:
  - Competency- The worksite skill to be performed
  - Performance Standards- How to assess skill performance as applicable to worksite
  - Learning Objectives- Content knowledge recommended to learn these skills; may be taught by the employer, school district and/or technical college.
  - Skill Standards Checklist- The documented list of competencies completed by the YA student
  - W/S- Listed after a skill indicates that skill performance may be learned and assessed at the worksite OR in the classroom in a simulated setting. However, a simulated setting should ONLY be used IF there is no possibility of skill performance at the worksite.
- Performance Standards & Learning Objectives are located in applicable Appendices of the **Program Guide for this Youth Apprenticeship**.

## 2. ALL Youth Apprentices **MUST** complete the Required Skills (Core Skills and Safety) competencies for each Pathway they are enrolled in.

- The Required Skills competencies may be completed concurrently with the specific Pathway process technical competencies.
- The Required Skills are common skills specific to all Science, Technology, Engineering, and Math sub-sectors. These skills are *aligned with* the National States' Career Clusters standards for the Science, Technology, Engineering, and Math Career Cluster.

## 3. Youth Apprenticeship choices (depending on job placement)

- Competencies have been reviewed by the Department of Workforce Development for Child Labor Laws. Contact the Department of Workforce Development's Equal Rights Division/Labor Standards Bureau at 608-266-6860 for questions regarding child labor laws. SEE Appendix A for special Child Labor Law considerations in this YA Program.
- Students will complete a **Minimum Rating** in the Required Skills and in one pathway unit for a Level One Science, Technology, Engineering, and Math YA and a **Minimum Rating** in the Required Skills and two pathway units for a Level TWO Science, Technology, Engineering, and Math YA.
- **Units within each Pathway are unique to that Pathway.** Therefore, switching between pathways, after the successful completion of the first year, is not allowable.
- The Department of Workforce Development Occupational Certificate will indicate "Science, Technology, Engineering, and Math" attained when the program is completed.

## 4. Competency Ratings

- Rate the student on the competencies regularly and revisit the competencies with the student periodically to offer the opportunity for an improved rating
- Arrangements must be made to ensure that the student learns, practices, AND performs each competency **even if** that competency is not part of their regular job function
- "Entry Level" criteria should be interpreted to mean "able to do the task satisfactorily."
- "Assist" in front of a skill indicates that the student should perform the skill *as indicated in the curriculum* "while assisting a worksite professional." Training should go beyond "observation only" for these skills. It will be up to the employer to determine the criticality of each specific task, training completed, and the actual level of supervision required. See curriculum details for requirements.

## Required Skills

Required of ALL Science, Technology, Engineering, and Math YA Students

Copy this page FOR EACH pathway to be completed

CORE SKILLS	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Apply academic knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Apply career knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Communicate effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Act professionally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Demonstrate customer service skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Cooperate with others in a team setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Think critically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Exhibit regulatory and ethical responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Use basic technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Use resources wisely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAFETY	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Follow personal safety requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Maintain a safe work environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Demonstrate professional role to be used in an emergency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Rating Scale:

**3** = Exceeds entry level criteria | Requires minimal supervision | Consistently displays this behavior

**2** = Meets entry level criteria | Requires some supervision | Often displays this behavior

**1** = Needs improvement | Requires much assistance & supervision | Rarely displays behavior

### Additional Comments –

## Science and Math Pathway

Bioscience Lab Foundations Unit	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Apply Bioscience Lab knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Use aseptic technique	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Clean & prepare glassware & instruments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Prepare reagents, solutions, and/or buffers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Perform calculations and conversions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Weigh and measure accurately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Operate lab equipment properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Conduct testing according to protocol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Record results of testing accurately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Maintain accurate records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Monitor & maintain lab &/or personal inventory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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### Additional Comments –

## Science and Math Pathway

Bioscience Applications Unit – Required Competencies	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Assist to organize & analyze data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Prepare a Bioscience presentation (W/S)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bioscience Applications Unit – Additional Competencies	Minimum rating of 2 for EACH Check Rating		
	1	2	3
<b>Choose at least 6 from 22 below</b>			
1. Grow &/or care for plants &/or lab animals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Collect plant or animal tissues from source	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Isolate &/or purify cells, microbes, nucleic acids, &/or proteins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Quantify &/or identify cells, microbes, nucleic acids, &/or proteins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Culture cells &/or microbes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Harvest cells &/or microbes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Perform spectroscopy (light, uv, IR, mass, fluorescence)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Perform chromatography (gas, TLC, HPLC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Perform flow cytometry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Perform microscopy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Perform restriction digests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Hybridize nucleic acids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Perform gel electrophoresis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Perform amplification (PCR, RT-PCR)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Perform blot assays (Southern, Western, Northern)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Perform nucleic acid sequencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Perform cellular assays	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Perform immunoassays (ELISA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Perform protein assays (Bradford, Lowry)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Perform transfection/transformation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Perform basic cloning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Run expression cloning tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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### Additional Comments –

## Additional Certifications, Training, Seminars and Projects

Please list in detail any additional certifications earned, any training and seminars attended, and/or any projects completed during the course of the Science, Technology, Engineering, and Math Youth Apprenticeship.

Description		
Notes/Comments		
Date Completed	Mentor/Trainer/Instructor Signature	Date Signed

Description		
Notes/Comments		
Date Completed	Mentor/Trainer/Instructor Signature	Date Signed

Description		
Notes/Comments		
Date Completed	Mentor/Trainer/Instructor Signature	Date Signed

Other Notes or Comments		
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# Post Program Completion Survey

Student Name	Expected Date of High School Graduation
School District	GPA at End of YA Program

**Instructions:** Indicate if the student will continue to be employed, and then check the appropriate boxes. **Please include internships, opportunities to work during school breaks, and other similar situations as offers of continued employment, even if they do not start immediately.**

<input type="checkbox"/> This student will be employed after completing the YA program. Check <input type="checkbox"/> Full time or <input type="checkbox"/> Part time.			
<b>Check all that apply:</b>		<b>Then, fill out the following information:</b>	
<input type="checkbox"/> Employment is related to YA program training		Employment Wage:	
<input type="checkbox"/> Employment is with same YA employer*		Employment Start Date:	
<input type="checkbox"/> Employment is seasonal and/or intermittent		Position Title (optional):	
<input type="checkbox"/> Employment is an internship		Industrial Sector <sup>†</sup> :	
<input type="checkbox"/> Employment is military		<sup>†</sup> Based on employer's NAICS Code. If unknown, describe the employer's primary income-producing line of business below.	
<input type="checkbox"/> Also entering post-secondary education/other training			
<input type="checkbox"/> Also entering a Registered Apprenticeship			
<input type="checkbox"/> Health/personal issues impacted ability for full employment			
<i>*If student accepted a job at a different employer, please provide that employer's contact information:</i>			
Employer Name		Street Address	
City	County	State	Zip

<input type="checkbox"/> This student will <b>not</b> be employed after completing the YA program.	
<b>Check one:</b>	<b>Then, check all that apply:</b>
<input type="checkbox"/> Student did not apply for further employment	<input type="checkbox"/> Entering post-secondary education or other training program
<input type="checkbox"/> Student applied, but was not interviewed	<input type="checkbox"/> Student unable to find an entry-level position to apply for
<input type="checkbox"/> Interviewed, but not offered employment	<input type="checkbox"/> Student had change in career interest or plans
<input type="checkbox"/> Student was offered continued employment, but did not accept	<input type="checkbox"/> Health/personal issues prohibited employment
Other comments:	

Mentor Name	Company Name
Mentor Signature	Date Completed