

**INSTRUCTOR NOTES**

Door Order Sheet

Skill Builders: Entry Forms, Technical Drawings

**During the activity pre/apprentices will:**

- Interpret and produce technical drawings
- Locate information in complex forms

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Paperwork – either paper or digital – is part of most tradesperson’s work.
- Contractors, estimators, builders and tradespersons all rely on technical drawings for the information they need to construct and/or manufacture a product.
- Basic math errors can result in costly materials and lost-time time mistakes.
- Need more help? Use the Skill Builders identified in the Handout.

Distribute the Handout.

**INSTRUCTOR NOTES**

## Heating Systems

## Skill Builders: Key Words &amp; Phrases, Charts &amp; Graphs, Tables &amp; Lists

**During the activity pre/apprentices will:**

- Compare key features of different systems
- Display information in charts and tables
- Locate information in complex forms

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (3 pages)

**Talking Points**

- Contractors and journeypersons are often required to provide advice on the benefits of multiple systems so that their clients can make informed choices.
- Numerical calculations, related to costs, may be a significant factor in making decisions and small errors can lead to financial losses.
- Using charts and tables in place of text is an efficient way to show detailed information at a glance.
- Need more help? Use the Skill Builders identified in the Handout.

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**INSTRUCTOR NOTES**

House Front Measurement

Skill Builders: Calculating Area, Rounding, Technical Drawings

**During the activity pre/apprentices will:**

- Calculate the surface area of a large structure
- Interpret technical drawings

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (1 page)

**Talking Points**

- Calculating area on the job is often more complicated than just measuring one basic shape.
- Basic calculation errors made when ordering materials can result in costly mistakes when either too much material is ordered or not enough.
- While electronics can help with most calculations, it is important to be able to recognize when an answer does not look right, as information may have been inputted incorrectly.
- Need more help? Refer to the Skill Builders identified in the Handout.
- You may also use your phone or a calculator to help with the calculations.

Distribute the Handout.

**INSTRUCTOR NOTES**

Invoice 1

Skill Builders: Entry Forms, Tables &amp; Lists

**During the activity pre/apprentices will:**

- Review common elements of invoices
- Calculate costs and taxes

**Skill Focus**

- **Key Skill:** Numeracy (money math, measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Paperwork – either paper or digital – is part of most tradesperson’s work.
- Basic calculation errors made in order forms, invoices and log books can result in costly errors.
- While electronics can help with most calculations, it is important to be able to recognize when an answer does not look right as information may have been inputted incorrectly.
- Need more help? Refer to the Skill Builders identified in the Handout.
- You may also use your phone or a calculator to help with the calculations.

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**INSTRUCTOR NOTES**

Invoice 2

Skill Builders: Conversion, Entry Forms, Tables &amp; Lists

**During the activity pre/apprentices will:**

- Review common elements of invoices
- Convert between imperial and metric systems.
- Calculate costs and taxes

**Skill Focus**

- **Key Skill:** Numeracy (money math, measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Paperwork – either paper or digital – is part of most tradesperson’s work.
- Basic calculation errors made in order forms, invoices and log books can result in costly errors.
- While electronics can help with most calculations, it is important to be able to recognize when an answer does not look right as information may have been inputted incorrectly.
- Need more help? Refer to the Skill Builders identified in the Handout.
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**INSTRUCTOR NOTES**

Map Reading: Estimation

Skill Builders: Key Words &amp; Phrases, Rounding, Technical Drawings

**During the activity pre/apprentices will:**

- Compare estimated and calculated distances.

**Skill Focus**

- **Key Skill:** Numeracy (estimation & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (3 pages)

**Talking Points**

- Whether travelling between job sites, making deliveries, or driving long haul, the ability to accurately read maps is part of almost every trade.
- GPS systems while generally accurate, have some limitations. They can malfunction, may not show the most up to date routes, and do not provide details of private land or land that is under development and does not yet show on a map.
- Need help? Use the Skill Builders identified in the Handout.

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**INSTRUCTOR NOTES**

Measuring Temperature  
Skill Builders: Conversion

**During the activity pre/apprentices will:**

- Interpret thermometer readers
- Convert from Celsius to Fahrenheit

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Accurately taking and interpreting measures of temperature is a fundamental skill across the trades.
- Measuring and maintaining accurate temperature is commonly required in the automotive trade, in maintaining air conditioning, by chefs, in manufacturing, and in natural resource processing.
- Errors in interpreting and reporting measurements can result in significant losses to the company in product lost or equipment damaged.
- Industrial thermometers may display as a traditional home thermometer (with a rising bar) or on a gauge or a digital readout.
- While most thermometers work automatically, it is important to be able to recognize when an answer does not look right as there may be a malfunction.
- Need help? Use the Skill Builders identified in the Handout.

Distribute the Handout.

**INSTRUCTOR NOTES**

Mixing Cement

Skill Builders: Conversion, Percentages

**During the activity pre/apprentices will:**

- Calculate ratios
- Convert between imperial and metric systems

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Tradespersons perform basic math calculations every day using digital tools, and in their heads.
- Trades in Canada use both imperial and metric systems of measurement.
- Construction materials in Canada are labelled in both imperial and metric.
- Calculation and measurement errors cost companies in lost time and wasted materials.
- Need more help? Refer to the Skill Builders identified in the Handout.

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**INSTRUCTOR NOTES**

Noise Levels

Skill Builders: Charts &amp; Graphs, Rounding, Tables &amp; Lists

**During the activity pre/apprentices will:**

- Discuss the risk of noise-induced hearing loss
- Review common elements of charts and graphs

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use, Reading

**Handouts**

- Questions and Document Set (3 pages)

**Talking Points**

- It is every worker's responsibility to stay safe on the job.
- When hazardous noise cannot be reduced by other means, appropriate hearing protection (such as ear plugs or ear muffs) should be worn to minimize long term damage.
- Using charts in place of text is a quick way to show detailed information at a glance.
- Need more help? Use the Skill Builders identified in the Handout.

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**INSTRUCTOR NOTES**

## On the Job Calculations

Skill Builders: Conversion, Rounding, Percentages, Decimals &amp; Fractions

**During the activity pre/apprentices will:**

- Calculate metric and imperial conversion and round numbers

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)

**Handouts**

- Questions Set (2 pages)

**Talking Points**

- Tradespersons perform basic math calculations every day using digital tools, and in their heads.
- Trades in Canada use both imperial and metric systems of measurement. Calculation and measurement errors cost companies in lost time and wasted materials.
- In some circumstances, rounding may be appropriate, however in others where greater accuracy is required, rounding up or down may result in costly errors.
- In one extreme example, in 1999, NASA used metric units and their sub-contractor used imperial units on the same project. This resulted in an undetected calculation error that led to the loss of a \$125 million satellite that was destroyed by travelling too close to Mars.
- Need more help? Refer to the Skill Builders identified in the Handout.

Distribute the Handout.

**INSTRUCTOR NOTES**

Patio Layout

Skill Builders: Pythagorean Theorem, Volume, Calculating Area, Rounding

**During the activity pre/apprentices will:**

- Calculate feature placement to complete a technical drawing
- Review basic formulas

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Calculating area or volume on the job is often more complicated than just measuring one basic shape.
- Typically, one job will require the use of multiple formulas.
- Basic calculation errors made when ordering materials can result in costly mistakes when either too much material is ordered or not enough.
- While electronics can help with most calculations, it is important to be able to recognize when an answer does not look right as information may have been inputted incorrectly.
- Need more help? Refer to the Skill Builders identified in the Handout.
- You may also use your phone or a calculator to help with the calculations.

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**INSTRUCTOR NOTES**

## Pay Statements

Skill Builders: Key Words &amp; Phrases, Entry Forms, Percentages, Decimals &amp; Fractions

**During the activity pre/apprentices will:**

- Interpret pay statements
- Calculate payroll deductions

**Skill Focus**

- **Key Skill:** Numeracy (money math)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (3 pages)

**Talking Points**

- Pay statements (also called pay stubs or pay slips) contain important information about your earnings and authorized deductions.
- Pay statements may be provided in paper or digital formats.
- Failure to accurately interpret and track pay statements can result in errors being missed that result in lost income (or overpayment) and generate work for payroll costing companies in lost time to correct.
- There is a great variety in tracking systems and forms used in different workplaces.
- Need more help? Refer to the Skill Builders identified in the Handout.

Distribute the Handout.

**INSTRUCTOR NOTES**

Product Installation

Skill Builders: Conversion, Technical Drawings, Rounding & Percentages, Decimals & Fractions

**During the activity pre/apprentices will:**

- Convert between imperial and metric systems
- Interpret technical drawings

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Contractors, estimators, builders and tradespersons all rely on technical drawings for the information they need to construct and/or manufacture a product.
- Basic math errors in can result in costly materials and lost-time time mistakes.
- While electronics can help with most calculations, it is important to be able to recognize when an answer does not look right as information may have been inputted incorrectly.
- Need more help? Refer to the Skill Builders identified in the Handout.
- You may also use your phone or a calculator to help with the calculations.

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## INSTRUCTOR NOTES

Rough Openings: Calculation  
Skill Builder: Tables & Lists, Technical Drawings

### During the activity pre/apprentices will:

- Review the concepts of rough and finished openings
- Make basic calculations
- Locate information in complex documents

### Skill Focus

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

### Handouts

- Questions and Document Set (3 pages)

### Talking Points

- Tradespersons perform basic math calculations every day using digital tools and in their heads.
- Calculation and measurement errors cost companies in lost time and wasted materials.
- While relying on digital tools is usually safe, they are not perfect. It is also important when performing calculations to have a rough sense in your head of what the correct answers should be.
- Need more help? Refer to the Skill Builder identified in the Handout.

Distribute the Handout.

## INSTRUCTOR NOTES

Rough Openings: Conversion

Skill Builders: Conversion, Rounding, Tables & Lists

### During the activity pre/apprentices will:

- Review the concept of rough and finished openings
- Calculate metric and imperial conversion and round numbers
- Enter information in complex documents

### Skill Focus

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

### Handouts

- Questions and Document Set (3 pages)

### Talking Points

- Tradespersons perform basic math calculations every day using digital tools and in their heads.
- Trades in Canada use both imperial and metric systems of measurement.
- Calculation and measurement errors cost companies in lost time and wasted materials.
- Need more help? Refer to the Skill Builders identified in the Handout.

Distribute the Handout.

**INSTRUCTOR NOTES**

Tiny House

Skill Builders: Calculating Area, Technical Drawings

**During the activity pre/apprentices will:**

- Calculate the surface area of a large structure
- Interpret technical drawings

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Contractors, estimators, builders and tradespersons all rely on technical drawings for the information they need to construct and/or manufacture a product.
- Calculating area on the job is often more complicated than just measuring a single basic shape.
- Basic math errors in can result in costly materials and lost-time time mistakes.
- While electronics can help with most calculations, it is important to be able to recognize when an answer does not look right as information may have been inputted incorrectly.
- Need more help? Refer to the Skill Builders identified in the Handout.
- You may also use your phone or a calculator to help with the calculations.

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## INSTRUCTOR NOTES

Volume of Cylinders and Cones  
Skill Builder: Volume, Rounding

**During the activity pre/apprentices will:**

- Calculate the volume of frequently used curved-sided objects such as cylinders, cones and round containers

**Skill Focus**

- **Key Skill:** Numeracy (measurement & calculation)

**Handouts**

- Questions and Document Set (2 pages)

**Talking Points**

- Basic and advanced math are used by all tradespersons working in the field or in the office.
- Trades in Canada use both imperial and metric systems of measurement.
- Calculation and measurement errors cost companies in lost time and wasted materials.
- The volume of three-dimensional curved shapes such as cylinders is calculated as pi x radius squared x height or  $V = \pi r^2 \times H$
- The volume of three dimensional shapes such as cones is pi x radius squared x height  $\div 3$  or  $V = [\pi r^2 \times H] \div 3$
- Need more help? Use the Skill Builder identified in the Handout.
- You may also use your phone or a calculator to help with the calculations.

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**INSTRUCTOR NOTES**

Work Schedules

Skill Builders: Key Words &amp; Phrases, Tables &amp; Lists

**During the activity pre/apprentices will:**

- Interpret shifts reported in a work schedule.

**Skill Focus**

- **Key Skill:** Numeracy (scheduling, budgeting & accounting)
- **Supporting Skill(s):** Document Use

**Handouts**

- Questions and Document Set (3 pages)

**Talking Points**

- Failure to accurately interpret work schedules can result in showing up at the wrong job site, lost wages and make extra work for payroll costing companies in lost time to correct.
- There is a great variety in tracking systems and forms used in different workplaces.
- Need more help? Refer to the Skill Builders identified in the Handout.

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