

# St. Joseph for Ants

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Ms. Vashchyshyn

Workplace and Apprenticeship Mathematics 10

St. Joseph High School

## St. Joseph for Ants

### SUMMARY

**Your task, as a group, will be to create a scale model of a portion of St. Joseph high school.** Here are the available spaces (maximum three groups per room):

art room	room 315 ( <i>Ms. Vashchyshyn's classroom</i> )
library	music room
hallway	gym

After choosing a space, you will **sketch** the room, **take all necessary measurements**, and **choose a scale factor**. Next, you will use your drawings to create a scale model. The goal is to create a realistic and recognizable replica of the room.

You will also choose the materials you will need to create the replica. The final product should be decorated to look like the space in question, but it is important to **first focus your efforts on measurements and calculations**. Small errors will cause problems during the construction phase.

### STAGES

- Measurements
- Calculations (reduction of measurements, unit conversions, inaccessible heights)
- Construction

### FINAL PRODUCT

At the end of the process, your group will submit a portfolio that includes all of your drawings and original measurements, your calculations, as well as your model. All work must be neat, easy to read, and organized in a logical fashion so that it is easy to follow and understand.

## Group Contract

Group Members:

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### Our Agreement

- We promise to **listen** to each other's ideas with respect.
- We promise to complete assigned work **to the best of our abilities**.
- We promise to **ask for help** if we need it.
- We promise to **share responsibility** and **workload** during all steps of the project.
- We promise to submit work that is **our own**.

**If someone in the group breaks one or more of these promises**, the group has the right to call a meeting with the teacher and ask the person to follow the rules.

If the group member continues to break these promises, the teacher has the right to remove the student from the group, **who will then be required to submit their own project**.

Date: \_\_\_\_\_

Signatures of group members:

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# St. Joseph for Ants Calendar 2017

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
November 26	November 27	November 28	November 29 <b>INTRODUCTION</b>	November 30	December 1	December 2
December 3	December 4 Checkpoint: <b>Measurements</b>	December 5	December 6 Checkpoint: <b>Calculations</b>	December 7	December 8	December 9
December 10	December 11 Checkpoint: <b>Construction</b>	December 12	December 13 <i>The End</i>	December 14	December 15	December 16
December 17	December 18	December 19	December 20	December 21	December 22 (12:30 dismissal)	December 23

## St. Joseph for Ants Checkpoint Rubric: Measurements

Date: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Expectations not met	Expectations	Expectations met or exceeded
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### Diagrams

The group has made several **sketches of the space** that help to visualize it. They include all **essential components** as well as some **smaller details** that make the room recognizable.

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### Measurements (WA10.3, 10WA.4)

The group has **measured all essential components** of the space (**in meters**, as appropriate). They have also measured some **smaller details** that make the room recognizable (e.g., large posters, flags, etc.).

The group has also taken the necessary measurements that will allow them to calculate **inaccessible heights**.

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### Scale factor (WA10.7)

The group has chosen a box and used it to determine an appropriate scale factor. The group explains how the box must be modified so as to create a space (mathematically) similar to the room in question. **All work is shown.**

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### Organisation

The measurements and drawings are organized by element or by wall. They are clear, easy to read and understand.

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#### Learning outcomes:

**WA10.3:** Demonstrate understanding of measurement systems, including the Système International (SI).

**WA10.4:** Demonstrate understanding of linear measurement, including units in the SI system of measurement.

**WA10.7:** Demonstrate understanding of similarity of convex polygons.

## St. Joseph for Ants Checkpoint Rubric: Calculations

Date: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Expectations not met	Expectations	Expectations met or exceeded
	<p><b>Reduction of measurements (WA10.7)</b></p> <p>The group clearly demonstrates, for several measurements, how they converted original dimensions to reduced dimensions suitable for the scale model.</p> <p><b>All work is shown.</b></p>	
	<p><b>Unit conversions (WA10.4)</b></p> <p>The group clearly demonstrates, for several measurements, how reduced dimensions were converted to more appropriate units (e.g., m to cm).</p> <p><b>All work is shown.</b></p>	
	<p><b>Inaccessible heights (WA10.8)</b></p> <p>The group clearly demonstrates how inaccessible heights were calculated using the appropriate accessible measurements.</p> <p><b>All work is shown.</b></p>	
	<p><b>Presentation</b></p> <p>Calculations are organized in a logical fashion and appropriately labeled (e.g., <i>a) Reductions, b) Unit conversions, c) Inaccessible heights</i>). The work is clear, neat, and easy to follow.</p>	

**Curriculum outcomes:**

**WA10.4:** Demonstrate understanding of linear measurement, including units in the SI system of measurement.

**WA10.7:** Demonstrate understanding of similarity of convex polygons.

**WA10.8:** Demonstrate an understanding of primary trigonometric ratios (sine, cosine, and tangent).

**WA10.10:** Apply proportional reasoning to solve problems involving unit pricing and currency exchange.

## St. Joseph for Ants

### Checkpoint Rubric: Construction

Date: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Expectations not met	Expectations	Expectations met or exceeded
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#### Working model

The model includes all essential components of the space, as well as smaller details that make it recognizable. It is portable and durable, with all elements fixed firmly into place.

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#### Visual appeal

The model has been constructed with care; attention to detail (e.g., colour, placement of objects) is evident. It is clear that the group made an effort to create a quality product.

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#### Labels

The model includes a title (e.g., "Art Room") and a scale factor to help viewers interpret the model.

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# St. Joseph for Ants Daily Log

Date: \_\_\_\_\_

Attendance:

Work summary:

Goals for tomorrow:

Difficulties/issues to resolve:

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