



Achievements and Competencies

Learning Outcomes

Grades 10-12
Performing and recording
Communication and teamwork

Achievements and Competencies are based on the Common Framework of Science Learning Outcomes (K-12) set by the Canadian Council of Ministers of Education (1997).

Specific Expectations

Grade 11 & 12

PHYSICS

Performing and recording

213-1 Implement appropriate sampling procedures (e.g., implement appropriate procedures when measuring radiation emitted by microwave ovens or cellular phones).

Students will follow the procedure for using the microwave oven to melt the chocolate at the antinodes. The distance between the melted antinodes in the chocolate can be measured and used to calculate the wavelength of the microwave.

Communication and teamwork

327-1 Describe the characteristics of longitudinal and transverse waves.

Microwaves consist of transverse waves that can be analysed and described by melting chocolate in the microwave and determining the distance between the melted antinodes.

327-8 Explain qualitatively and quantitatively the phenomena of wave interference, diffraction, reflection and refraction, and the Doppler-Fizeau effect.

Microwaves are electromagnetic waves. The wave reflects off the wall of the microwave oven which creates constructive interference, causing larger peaks and valleys. The melted points in the chocolate can be used as evidence of that constructive interference.