

# CTF: Robotics 7 & 8 Course Outline - Mr. Kohlenberg

## **Course Description:**

Robotics 7 & 8 will create opportunities for students to engage in planning, computational thinking, and collaborative problem solving through both unplugged and online activities. Students will develop their skills while working in groups to accomplish tasks and activities to build their knowledge and experience with the four elements of computational thinking: decomposition, pattern making, abstraction and algorithms to help support coding. Students will explore basic coding, in a variety of platforms, and begin coding robots to accomplish simple tasks or challenges.

## **CTF Description:**

Career and Technology Foundations (CTF) helps students grades 5-9, build their understanding of the world around them as they identify and apply career and life skills. Students develop communication, collaboration, critical thinking, time management and problem solving skills through hands-on learning experiences. CTF supports the development of literacy, numeracy and competencies, which can be developed through student-focused learning opportunities that can include an interdisciplinary approach.

*Alberta Education, 2017*

## **Course Schedule:**

This is a tentative schedule for the course, that will allow for flexibility in activities and challenges based on student interest and experience.

| Month     | Areas of Focus  |
|-----------|---|
| September | Collaborative Problem Solving <ul style="list-style-type: none"><li>● Tin Foil Boats</li><li>● Self Propelled Cars</li></ul>                    |
| October   | Computational Thinking <ul style="list-style-type: none"><li>● Four Elements of Computational Thinking</li><li>● Unplugged Activities</li></ul> |
| November  | Basics of Coding <ul style="list-style-type: none"><li>● Hour of Code</li><li>● Scratch</li><li>● Foos</li><li>● Playground</li></ul>           |
| December  | Introduction to Robotics  |

|         |  |
|---------|--|
|         | <ul style="list-style-type: none"> <li>• Ozobots</li> <li>• Makey Makey</li> </ul> |
| January | Robotics Challenges and Career Exploration   |

**Assessment:**

| <b>Category</b>                        | <b>Category Weightings</b> | <b>CTF Learner Outcome Alignment</b><br>Students will:  |
|--|----------------------------|---|
| <b>Plan and Problem Solve</b>          | 30%                        | <ul style="list-style-type: none"> <li>• Plan in response to challenges.</li> <li>• Make decisions in response to challenges.</li> <li>• Adapt to change and unexpected events.</li> <li>• Solve problems in response to challenges.</li> </ul>   |
| <b>Create</b>                          | 40%                        | <ul style="list-style-type: none"> <li>• Follow safety requirements associated with occupational areas and related technologies.</li> <li>• Demonstrate environmental stewardship associated with occupational areas.</li> <li>• Create products, performances or services in response to challenges.</li> <li>• Use occupational area skills, knowledge and technologies.</li> <li>• Develop skills that support effective relationships.</li> <li>• Collaborate to achieve common goals.</li> </ul> |
| <b>Reflect, Appraise, and Evaluate</b> | 30%                        | <ul style="list-style-type: none"> <li>• Explore my interests and passions while making personal connections to career possibilities.</li> <li>• Appraise the skills, knowledge and technologies used to respond to challenges.</li> <li>• Communicate my learning.</li> <li>• Determine how my actions affect learning.</li> </ul>   |

### **Class Expectations:**

This course is very different from core subjects. It will be focused on the completion of multiple projects / units throughout the year. Therefore students must:

- be aware of all deadlines and ensure work is completed on time.
- do their personal best on each
- not disturb the learning of others
- treat all students, staff, equipment and school property with respect and care.
- ask questions if they are unsure (ie. computers, cameras, etc).

***\*Teacher's professional judgment will be utilized to determine a final grade based on the best student evidence of student outcomes.***