

Appendix1: Implementing Common Core Standards

The following standards are used in connection with this artificial intelligence curriculum unit:

The following math objectives are addressed as students complete the multiple computer science activities in this artificial intelligence curriculum unit. Students will demonstrate mastery of critical thinking skills as they complete these multiple computer science activities that use probability objectives. Some of these activities include tic-tac-toe, Hexapawn, SNAP loops and variables. The mathematical objectives below are key components in carrying out creative problem solving in this curriculum unit.

- **CCSS.Math.Content.7.SP.C.5** Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $1/2$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
- **CCSS.Math.Content.7.SP.C.6** Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
- **CCSS.Math.Content.7.SP.C.7a** Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*
- **CCSS.Math.Content.7.SP.C.8** Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
- **CCSS.Math.Content.7.SP.C.8a** Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
- **CCSS.Math.Content.7.G.A.1** Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

These literacy objectives are used when students write argumentative essays and participate in a Socratic Seminar. Students will also demonstrate these literacy objectives as they write directions in several of the computer science activities. Conducting and analyzing research is also an important literacy objective in this

artificial intelligence curriculum unit. Finally, students will use some of these literacy objectives as they participate in class discussions and play computer science games with one another in class.

- **CCSS.ELA-Literacy.W.6.1.a**
Introduce claim(s) and organize the reasons and evidence clearly.
- **CCSS.ELA-Literacy.W.6.1.b**
Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.
- **CCSS.ELA-Literacy.RI.7.1** Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- **CCSS.ELA-Literacy.RI.7.2** Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.
- **CCSS.ELA-Literacy.RI.7.3** Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).
- **CCSS.ELA-Literacy.SL.8.1.c**
Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
- **CCSS.ELA-Literacy.SL.8.1.d**
Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented
- **CCSS.ELA-Literacy.RH.6-8.1**
Cite specific textual evidence to support analysis of primary and secondary sources.
- **CCSS.ELA-Literacy.RH.6-8.2**
Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.
- **CCSS.ELA-Literacy.RH.6-8.3**
Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- **CCSS.ELA-Literacy.RST.6-8.3**
Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks
- **CCSS.ELA-Literacy.RST.6-8.7**
Integrate quantitative or technical information expressed in words in a text with a

version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

- **CCSS.ELA-Literacy.RST.6-8.8**

Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

CCSS.ELA-Literacy.RST.6-8.9

Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.