

# STANDARDS CHART Grades 3-6 Skills supporting key state and national standards for science and engineering and English language arts.

| NGSS****   | A) Next-Gen Racers | B) Graphing Victory | C) Friction Fighters | D) Powerful Personalities | Common Core Language Arts                           | A) Next-Gen Racers                          | B) Graphing Victory    | C) Friction Fighters  | D) Powerful Personalities                        |
|--|--------------------|---------------------|----------------------|---------------------------|---|---|------------------------|-----------------------|--|
| <b>Engineering Design</b>                            |                    |                     |                      |                           | <b>Reading Standards for Informational Text</b>     |   |                        |                       |  |
| Define a simple design problem                       | 3-5-ETS-1          |                     | 3-5-ETS1.1           |                           | Key ideas and details                               | RI1, RI2 (Gr. 3-5)<br>RI1, RI2, RI3 (Gr. 6) |                        | RI1, RI2, RI3 (Gr. 6) | RI1, RI2, RI3 (Gr. 3-5)<br>RI1, RI2, RI3 (Gr. 6) |
| Generate and compare multiple possible solutions     | 3-5-ETS-2          | 3-5ETS1-2           | 3-5-ETS1.2           |                           | Craft & structure                                   |   |                        |                       | RI5 & R16 (Gr. 3-5)                              |
| Plan and carry out fair tests                        | 3-5-ETS-3          |                     | 3-5-ETS1.3           |                           | Integration of knowledge and ideas                  | RI7 (Gr. 3-5)<br>RI7 (Gr. 6)                |                        | RI7, RI8, RI9 (Gr. 6) | RI7, RI8, RI9 (Gr. 3-5)<br>RI7, RI8, RI9 (Gr. 6) |
| Define and delimit engineering problems              | ETS1.A             |                     |                      |                           | <b>Speaking and Listening</b>                       |   |                        |                       |  |
| Develop possible solutions                           | ETS1.B             |                     |                      |                           | Comprehension and collaborations                    |   |                        | SL1&3 (Gr. 3-5)       |  |
| Optimize the design solutions                        | ETS1.C             |                     | ETS1.C               |                           | Presentation of knowledge and ideas                 |   |                        | SL4 (Gr. 3-5)         |  |
| Evaluate competing design solutions                  | MS-ETS1-2          |                     |                      |                           | <b>Writing Standards</b>                            |   |                        |                       |  |
| Crosscut concepts                                    | MS-ETS1-1          |                     |                      | 3-5-ETS-1 & 2             | Text types and purpose                              |   |                        |                       | W2 (Gr.3-5), W2 (Gr. 6)                          |
| Analyze data from test                               | MS-ETS1-3          | MS-ETS1-3           | MS-ETS1-3            |                           | Production and distribution of writing              |   |                        | W4 & W6 (Gr. 6)       | W6 (Gr.3-5), W4 (Gr. 6)                          |
| <b>Energy</b>  |                    |                     |                      |                           | Research to build present knowledge                 |   |                        | W7 & W8 (Gr. 6)       | W7 & W9 (Gr. 6)                                  |
| Use evidence to construct an explanation             |                    | 4-PS3-1 (Gr. 4)     |                      |                           | <b>Common Core Mathematics</b>                      |   |                        |                       |  |
| Make observations to provide evidence                |                    | 4-PS3-2 (Gr. 4)     | 4-PS3-2              |                           | <b>Measurement and Data</b>                         | 3.MD.A.1 (Gr. 3)                            |                        |                       |  |
| Ask questions and predict outcomes                   |                    | 4-PS3-3 (Gr. 4)     |                      |                           | Solve problems involving measurement and estimation |   |                        |                       |  |
| Apply scientific ideas to design, test, and refine   |                    | 4-PS3-4 (Gr. 4)     |                      |                           | Represent and interpret data                        |   | 3.MD.3, 4.MD.4, 5.MD.2 |                       |  |
| Construct and interpret graphical displays           |                    | MS-PS3-1            |                      |                           | Use the four operations                             |   |                        |                       |  |
| Plan and investigate                                 |                    |                     | MS-PS3-4             |                           | Write and interpret expressions                     |   |                        |                       |  |
| <b>Motion and Stability: Forces and Interactions</b> |                    |                     |                      |                           | <b>Expressions and Equations</b>                    |   |                        |                       |  |
| Plan and conduct investigations                      |                    |                     | 3-PS2-1              |                           | Algebraic expressions                               |   | 6.EE.2c                |                       |  |
| Crosscut – Cause & Effect                            |                    |                     |                      |                           | <b>Operations and Algebraic Thinking</b>            |   |                        |                       |  |
|  |                    |                     |                      |                           | Represent and solve problems                        |   | 3.OA.1                 |                       |  |
|  |                    |                     |                      |                           | Use the four operations                             |   | 4.OA.2                 |                       |  |
|  |                    |                     |                      |                           | Write and interpret expressions                     |   | 5.OA.1&2               |                       |  |