EXECUTIVE SUMMARY

Purpose of Report: To provide the School Board with an update on the Computer Science Immersion program at Anne Sullivan, Lowell, and Hayward Elementary Schools and Whittier and George McGovern Middle Schools.

The Sioux Falls School District is in its second year of a five-year contract with the Computer Science Immersion Program, Code to the Future. Building on the commitment to multiple pathways and the desire to diversify the population in specialized schools, the Computer Science Immersion program was initiated at three elementary schools in 2017-18 and has expanded to two middle schools this 2018-19 school year.

Students at all schools participate in coding for 45 minutes to 1.5 hours each week. The curriculum has been developed by the Code to the Future, a national company with expertise in developing critical thinking and computer science skills, and is supported by a full-time coach, provided by the program. Instruction is divided into cycles with a showcase at the culmination of each cycle. The goal is for students to use their coding skills to support knowledge they are learning in their other classes.

Area technology companies are supporting the program by attending the showcases, sharing information about working in the tech world, and through financial support for resources to build enthusiasm about the program.

Administrative Recommendation to School Board: Acknowledge the Computer Science Immersion update.
Computer Science Immersion Report

Purpose of Report: To provide the School Board with an update on the Computer Science Immersion program at Anne Sullivan, Lowell, and Hayward Elementary Schools and Whittier and George McGovern Middle Schools.

District Priority Area: Student Outcomes
Priority Statement 1: SFSD will provide rigorous, effective, and engaging curriculum and instruction for all students to emphasize growth and reduce the achievement gap.

Explanation:
Building on the commitment to multiple pathways and the desire to diversify the population in specialized schools, the District initiated Computer Science Immersion for all students in Kindergarten through 5th Grade at Anne Sullivan, Lowell, and Hayward Elementary Schools in the fall of 2017. In the fall of 2018 the program expanded to students in 6th through 8th grade at George McGovern and Whittier Middle Schools.

At the elementary level the coding curriculum is delivered through three cycles: legos/robotics; block-based coding; text-based coding. Each cycle culminates in a showcase. The showcase begins with a keynote presentation delivered by students. Following the presentation, students individually share the projects they have completed during the cycle and answer questions. Students engage in coding for 1 to 1.5 hours each week and instruction is delivered by the classroom teacher. The goal is for students to use their coding skills to support knowledge they are learning in their other classes, such as science, social studies, math, or language arts.

At the middle school level, coding instruction is delivered by the science teachers in grades 6-8. Students engage in coding one day each week. During the first cycle of instruction, students learned to use html and css to create a web page to share information on a science topic. During the second cycle, students will create a web page and use javascript to make it interactive, adding features such as a quiz. As at the elementary level, each cycle culminates with a showcase. The showcase begins with a keynote delivered by students. Following the keynote, students individually share their web pages and respond to questions.

Code to the Future, a national company with expertise in developing critical thinking and computer science skills, develops the curriculum that the Computer Science Immersion program is using. Code to the Future also provides a coach who is in classrooms each week to support teachers as they implement the curriculum. After the first two years of implementation, the coach will be in the classrooms less frequently resulting in a gradual release of responsibility to the teachers.
Each elementary school has a corporate sponsor who provides computer programmers to view coding projects and provide feedback and encouragement to young programmers. Corporate school partnerships:

Anne Sullivan   MetaSystems  
Lowell           SDN Communications  
Hayward          Citibank, RTI  

In addition, Raven Industries and Marco Printing have given financial donations to support the overall Computer Science Immersion program and Click Rain created a video for the middle school students to illustrate what it looks like to work in an industry that uses computer science to develop web pages and other marketing tools for businesses.

The demographic breakdown of students participating in Computer Science Immersion is as follows:

<table>
<thead>
<tr>
<th></th>
<th>K-5</th>
<th>6-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of students</td>
<td>1,609</td>
<td>1,883</td>
</tr>
<tr>
<td>Multiracial</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Native American</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>White</td>
<td>34%</td>
<td>37%</td>
</tr>
<tr>
<td>Black</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>Asian</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Free &amp; Reduced</td>
<td>75%</td>
<td>73%</td>
</tr>
<tr>
<td>ELL</td>
<td>28%</td>
<td>19%</td>
</tr>
</tbody>
</table>

**Committee:** Assistant Superintendent of Academic Achievement, Director of Curriculum and Federal Programs, and six middle school and elementary principals.

**Costs:**

- 2017-18: $300,000 Code to the Future Contract
  $112,000 Supplies
- 2018-19: $401,000 Code to the Future Contract
  $12,000 Supplies
- 2019-20: $233,000 Code to the Future Contract
- 2020-21: $165,000 Code to the Future Contract
- 2021-22: $165,000 Code to the Future Contract

All costs have been paid through federal funds, including Title I and Title IIA.
**Summary:** The Computer Science Immersion program was initiated at three elementary schools in 2017-18 and expanded to two middle schools in 2018-19. All students at the schools participate in coding for 45 minutes to 1.5 hours each week. The curriculum has been developed by Code to the Future and is supported by a full-time coach provided by Code to the Future. Instruction is divided into cycles with a showcase as the culmination of each cycle. Area technology companies are supporting the program by attending the showcases, sharing information about working in the tech world, and through financial support for resources to build enthusiasm about the program.

**Administrative Recommendation to School Board:** Acknowledge the Computer Science Immersion update.