Problem Solving STEAM in elementary and middle schools
Students struggle with focus

<table>
<thead>
<tr>
<th>Age</th>
<th>Average Concentration Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>8 – 10 minutes</td>
</tr>
<tr>
<td>5</td>
<td>10 – 25 minutes</td>
</tr>
<tr>
<td>6</td>
<td>12 – 30 minutes</td>
</tr>
<tr>
<td>7</td>
<td>14 – 35 minutes</td>
</tr>
<tr>
<td>8</td>
<td>16 – 40 minutes</td>
</tr>
<tr>
<td>9</td>
<td>18 – 45 minutes</td>
</tr>
<tr>
<td>10</td>
<td>20 – 50 minutes</td>
</tr>
<tr>
<td>11</td>
<td>22 – 55 minutes</td>
</tr>
<tr>
<td>12</td>
<td>24 – 60 minutes</td>
</tr>
</tbody>
</table>

8-11s
- 35% have their own smartphone.
- 47% have their own tablet.
- 94% watch TV on a TV set for nearly 13h a week.
- 43% watch TV on other devices, mostly on a tablet.
- 74% play games, for around 10h a week.
- 93% go online, for around 13½ h a week.
- 45% of these mostly use a tablet to go online, with 24% mostly using a mobile.

12-15s
- 83% have their own smartphone.
- 50% have their own tablet.
- 90% watch TV on a TV set for around 13¾ h a week.
- 62% watch TV on other devices, mostly on a tablet or mobile.
- 76% play games, for around 13¾ h a week.
- 99% go online, for 20½ h a week.
- 53% of these mostly use a mobile to go online, with 23% mostly using a tablet.

43% watch TV programmes via OTT services (like Netflix, Now TV or Amazon Prime Video).

77% use Youtube, 75% of these say they use it to watch funny videos or pranks while 58% say music videos.

18% have a social media profile.

40% who own a mobile are allowed to take it to bed with them, it’s 28% among tablet owners.

Image Courtesy: https://mashable.com/article/teen-smartphone-usage/
TYPES OF ATTENTION

SUSTAINED ATTENTION
Holding and maintaining attention over a period of time, necessary for the focus and concentration needed in learning, listening, and paying attention during conversations or instructions.

SELECTIVE ATTENTION
Paying attention to specific input by the brain’s ability to select the input we pay attention to. Consciously, and unconsciously, we are able to select the input which is most important.

ALTERNATING ATTENTION
The ability to switch or immediately transfer focus from one activity to another. Switching points of concentration is needed to make sudden switches in alternating attention in tasks which require different cognitive skills.

DIVIDED ATTENTION
One’s ability to focus on two or more things at the same time. Simultaneously concentrating on various factors is evidenced by driving and holding a conversation simultaneously.

WWW.THEOTTOOLBOX.COM
Single Focus STEAM – One piece of equipment is used to engage students in a classroom setting. The equipment and curriculum only focus on one area of STEAM.

Students are excited for a while, but lose interest over time.

Multi-Focus STEAM – One piece of equipment is used to engage students in a classroom setting. The equipment and curriculum focuses on multiple areas of STEAM.

Students are excited because they are challenged in various areas of STEAM. The unknown and creativity keep them interested for longer periods of time.
ROBOTICS
K-8 Engaging STEM Curriculum
What Educators Say

“It’s easy to see the impact of SAM Labs because the students want to use it again and again.”

Sarrie Paguirigan
Makerspace Coach Portola Valley School District (USA)

“SAM Labs’ versatility and ease of use make lessons feel new, exciting and engaging.”

Rory McGrath
Deputy Headteacher Shacklewell Primary School (UK)

“SAM Labs is an intuitive, user-friendly interface that welcomes teachers of all technology backgrounds.”

Julia Dweck
Teacher (Gifted Specialist) Willow Lane Elementary (USA)

Bring STEM, STEAM, and Coding to Life in the K-8 Classroom
An interactive STEM curriculum using BIONIC Robots for K-8 learning
Nathan Hicks
Special Projects
nhicks@bluegrasset.com

Steve Cercone
FL Program Consultant
steve@bluegrasset.com