**Fluency Expectations**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PK</td>
<td>a. Subitize quantities up to 5 (i.e., the ability to look at a quantity and say the number (1-5) quickly, just by looking.)</td>
<td>Mem. sums up to 10</td>
<td>Mental addition and subtraction within 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Basic Math Fact Fluency**

A Position of the Knox County Schools Mathematics Department

**Question**

How do we help students develop and retain basic math fact fluency?

**Knox County Schools Mathematics Department Position**

Fluency with basic math facts is an essential skill necessary for success in mathematics. Fluency with basic math facts is the ability of students to be able to efficiently, flexibly, and accurately perform basic operations (addition, subtraction, multiplication, and division) with whole numbers. To develop mastery of basic math fact fluency, students need experiences in developing number sense or in using numbers flexibly. Students need opportunities to discover patterns in numbers, relationships between numbers, structures in counting, to make connections between numbers and sets of numbers, and to strengthen their understanding and skill through frequent distributed practice.

* For a full description of the KCS Mathematics Department Position, visit our website at knoxschools.org/Domain/1007

**Procedural Fluency**

Carrying out mathematical procedures flexibly, accurately, efficiently, and appropriately.

**Basic Fact & Computational Fluency**

Add, subtract, multiply, and divide whole numbers.

**Number Sense**

Making sense of numbers and how they work together.
Resources for Teachers and Parents

Slow and Steady!
Fluency ≠ Speed
Fluency = Understanding

Ask Questions
During Practice and Homework:
How do you know?
Explain how you did ______?
What does ______ represent?

During Classroom Discourse:
What strategy did you use?
Can someone restate [student’s] explanation?
Would another method work as well or better?
How does this relate to __________?

Number Talks
Pose a problem and ask kids to solve it mentally.
Try to gather as many strategies as possible.
Discuss the different methods and how they are related.

In the Car
Play Guess my Number
Count: How many trucks, red cars, etc.?
Count, add, or multiply road sign numbers or license plate numbers.

Websites and Activities
- You Cubed and Fluency Without Fear: youcubed.org/evidence/fluency-without-fear
- Graham Fletcher: gfletchy.com
- Steve Wyborney: stevewyborney.com
- Teach at the Speed of Learning: visiblethinking.weebly.com/daily-routines.html
- For songs, subscribe on YouTube to: NumberRock and Jack Hartmann Kids Music Channel

Free Games and Apps
- Xtra Math: xtramath.org
- Bedtime Math: bedtimemath.org
- Kakooma: gregtangmath.com/kakooma
- Prodigy: prodigygame.com

KCS Mathematics Department
- Mathematics Department Web page: knoxschools.org/Domain/1007
- Add Math Support to your Aspen Pages for Ready Math Parent Letters
- For strategy videos, subscribe on YouTube to Knox County Mathematics
- For Teachers: Elementary Math Teacher Canvas Page

Number Talks by Sherry Parrish
Table Talk Math by John Stevens