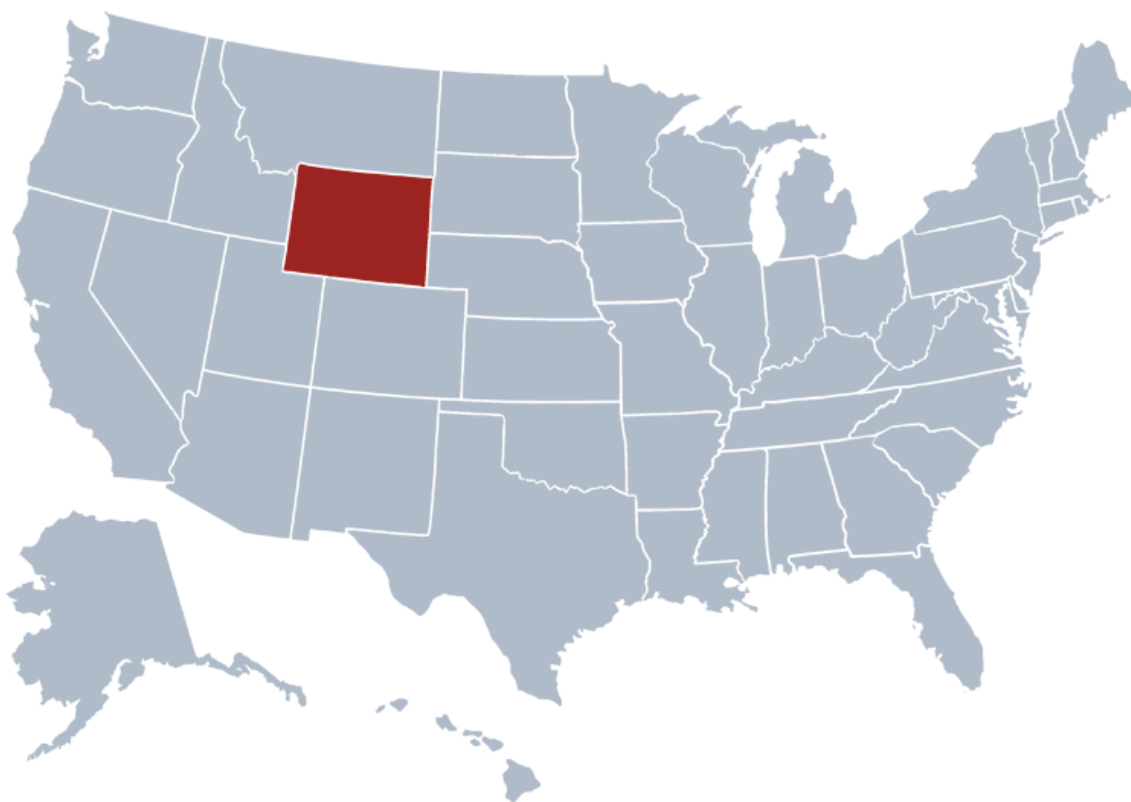


# Wyoming Waterford UPSTART Pilot Program

## FINAL REPORT

August 2019



**ABOUT WATERFORD UPSTART:** Waterford UPSTART is an in-home kindergarten readiness program that was created by the Utah State Legislature in 2009. The program is implemented by Waterford.org and helps children develop the foundational academic and cognitive skills they need for school success.

- Preschool-age children use **Waterford UPSTART in the home for 15-20 minutes a day**, five days a week.
- Children receive a **personalized curriculum in reading, math and science** (including over 450 instructional hours) with an emphasis on reading.
- **Parent empowerment.** Waterford UPSTART forms a partnership with parents and caregivers to ensure all children obtain the education necessary for success in school.
- **Social-emotional learning** is modeled in the software learning sequence and developed by parents through off-line activities.
- **Computers and Internet service are provided** if the home does not have them.
- **Waterford UPSTART is aligned to the Wyoming Early Learning Foundations;** Head Start Early Learning Outcomes Framework; NAEYC Early Childhood Program Standards; CASEL Social and Emotional Learning Competencies; and endorsed by the Council of Administrators of Special Education.

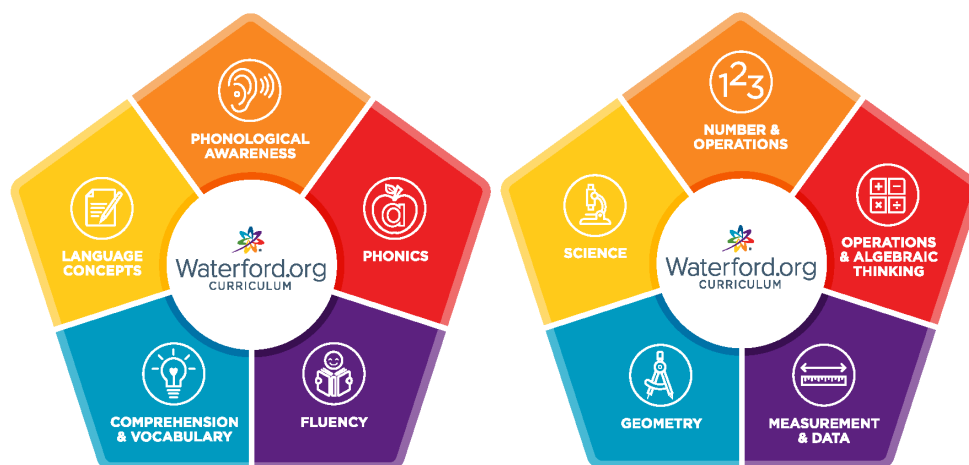


Head  
Start **naeyc**



The Wyoming Waterford UPSTART pilot program was comprised of two software programs:

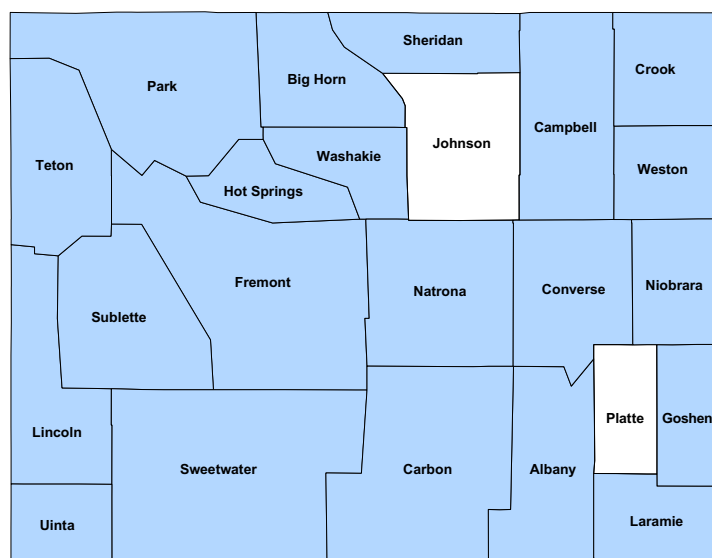
- **Waterford Early Learning** delivers individualized instruction in reading, math, and science that adapts to each child's learning trajectory. The program includes: 360 digital books; 330 animated songs; thousands of activities and lessons; and hundreds of instructional hours that meet national, state, and professional standards and guidelines.



- The **Waterford Assessments of Core Skills (WACS)** is a fundamental testing breakthrough for assessing very young children who do not know how to read. It is computer adaptive and offers scoring and reports easily understood by parents.

**WYOMING WATERFORD UPSTART PILOT PROGRAM:** Waterford.org raised philanthropic funds to administer Waterford UPSTART in Wyoming and partnered with the **Lincoln Uinta Child Development Association (LUCDA)** to help recruit children for the pilot program.

- Approximately **200 preschool-age children** participated across the state.
- Families began the program with in-person trainings and initial student assessments in **November 2018** and the program was completed with in-person final student assessments and local graduation events for families in **August 2019**.
- Statewide, children from **21 out of 23 counties**, including **49 unique zip codes**, used Waterford UPSTART in the home under the pilot program.



#### Unique Zip Codes for Participants

|       |       |       |       |
|-------|-------|-------|-------|
| 82001 | 82443 | 82801 | 83110 |
| 82007 | 82501 | 82901 | 83111 |
| 82009 | 82520 | 82930 | 83115 |
| 82053 | 82601 | 82933 | 83116 |
| 82070 | 82604 | 82935 | 83118 |
| 82072 | 82609 | 82937 | 83119 |
| 82240 | 82637 | 82939 | 83120 |
| 82242 | 82701 | 82941 | 83122 |
| 82321 | 82716 | 82944 | 83123 |
| 82401 | 82718 | 83001 | 83126 |
| 82411 | 82729 | 83014 | 83127 |
| 82426 | 82730 | 83101 | 83128 |
| 82435 |       |       |       |

#### WATERFORD ASSESSMENTS OF CORE SKILLS (WACS)

The Waterford Assessments of Core Skills (WACS)<sup>1</sup> is a computerized adaptive test of early literacy for students in pre-kindergarten through second grade. Initial content validity for WACS was established against state and national standards for 11 subsets:

- letter recognition
- letter sound
- initial sound recognition
- blending
- segmenting
- reading real words
- reading nonsense words
- sight words
- reading comprehension
- listening comprehension
- vocabulary

All items were calibrated for item response theory to determine item difficulty. To establish concurrent validity and predictive validity, student performance on WACS was compared to performance on five commonly-used standardized tests also measuring reading skills: **Dynamic Indicators of Basic Early Literacy Skills (DIBELS)**, **Texas Primary Reading Indicator (TPRI)**, **Idaho Reading Indicator (IRI)**, **Iowa Tests of Basis**

<sup>1</sup> A research article that provides additional information on WACS entitled, "Assessing Reading in Young Learners: Using a Computerized Adaptive Reading Test for Pre-Kindergarten through Second Grade," can be viewed at <https://owncloud.waterford.org/index.php/s/oamXrQDVTJavLX>.

**Skills (ITBS)**, and **Stanford Achievement Test Series (SAT 100)**. All correlations between tests are highly significant. Additional analyses indicate that WACS is internally coherent and has strong test-retest reliability.

WACS is an adaptive test. Pre-kindergarten students such as those in the Waterford UPSTART program only see the basic skills unless they perform well, in which case they also see advanced skills. When students take WACS for the first time, most of them receive basic skills only. As students use *Waterford Early Learning* and advance their reading abilities, they perform better at the end of the program when taking WACS, and are able to successfully complete basic skills as well as advanced skills. Therefore, the number of students receiving advanced skills increases from the beginning of the program to the end of the program. Additionally, as more students complete reading comprehension successfully at the end of the program, fewer students complete listening comprehension at that time.

The following table shows the question difficulty ranges for WACS by grade. Note each grade is divided into thirds, for example, kindergarten beginning, kindergarten intermediate, and kindergarten advanced.

| Grade     | Beginning   | Intermediate | Advanced    |
|-----------|-------------|--------------|-------------|
| Preschool | 1001 - 1333 | 1334 - 1666  | 1667 - 2000 |
| K         | 2001 - 2333 | 2334 - 2666  | 2667 - 3000 |
| 1         | 3001 - 3333 | 3334 - 3666  | 3667 - 4000 |
| 2         | 4001 - 4333 | 4334 - 4666  | 4667 - 5000 |
| 3         | 5001 - 5333 | 5334 - 5666  | 5667 - 6000 |
| 4         | 6001 - 6333 | 6334 - 6666  | 6667 - 7000 |

Final WACS scores revealed the following **notable outcomes for the Wyoming pilot program**:

- Children's **outcomes averaged at the "Kindergarten Intermediate" level**, where most children score mid-point during their kindergarten year.
- 91.15% of children scored at "Kindergarten Beginning" or above**, demonstrating strong school readiness outcomes.
- Children from low-income families demonstrated higher point gains than their more affluent peers.**
- Children that participated in Waterford UPSTART and had no other preschool performed as well as children who attended preschool** and also participated in Waterford UPSTART.
- Boys demonstrated higher point gains than girls.**

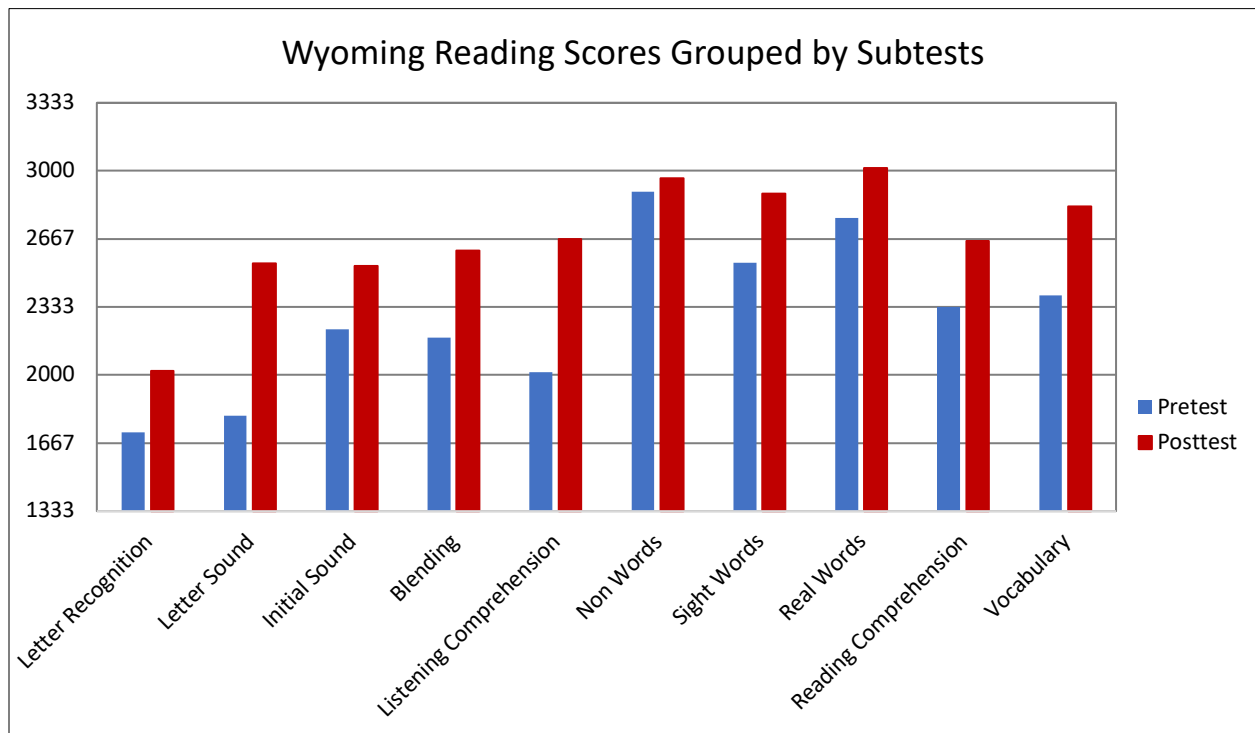
The following table shows mean final WACS subtest scores and their grade equivalents:

| Measured Individual Skill | Final WACS Score | Grade Equivalent                      |
|---------------------------|------------------|---------------------------------------|
| Letter Recognition        | 2021             | Kindergarten Beginning*               |
| Letter Sound              | 2548             | <b>Kindergarten Intermediate</b>      |
| Initial Sound             | 2534             | <b>Kindergarten Intermediate</b>      |
| Blending                  | 2610             | <b>Kindergarten Intermediate</b>      |
| Listening Comprehension   | 2665             | <b>Kindergarten Intermediate</b>      |
| Nonwords                  | 2965             | <b>Kindergarten Advanced</b>          |
| Sight Words               | 2890             | <b>Kindergarten Advanced</b>          |
| Real Words                | 3013             | <b>1<sup>st</sup> Grade Beginning</b> |
| Reading Comprehension     | 2656             | <b>Kindergarten Intermediate</b>      |
| Vocabulary                | 2827             | <b>Kindergarten Advanced</b>          |

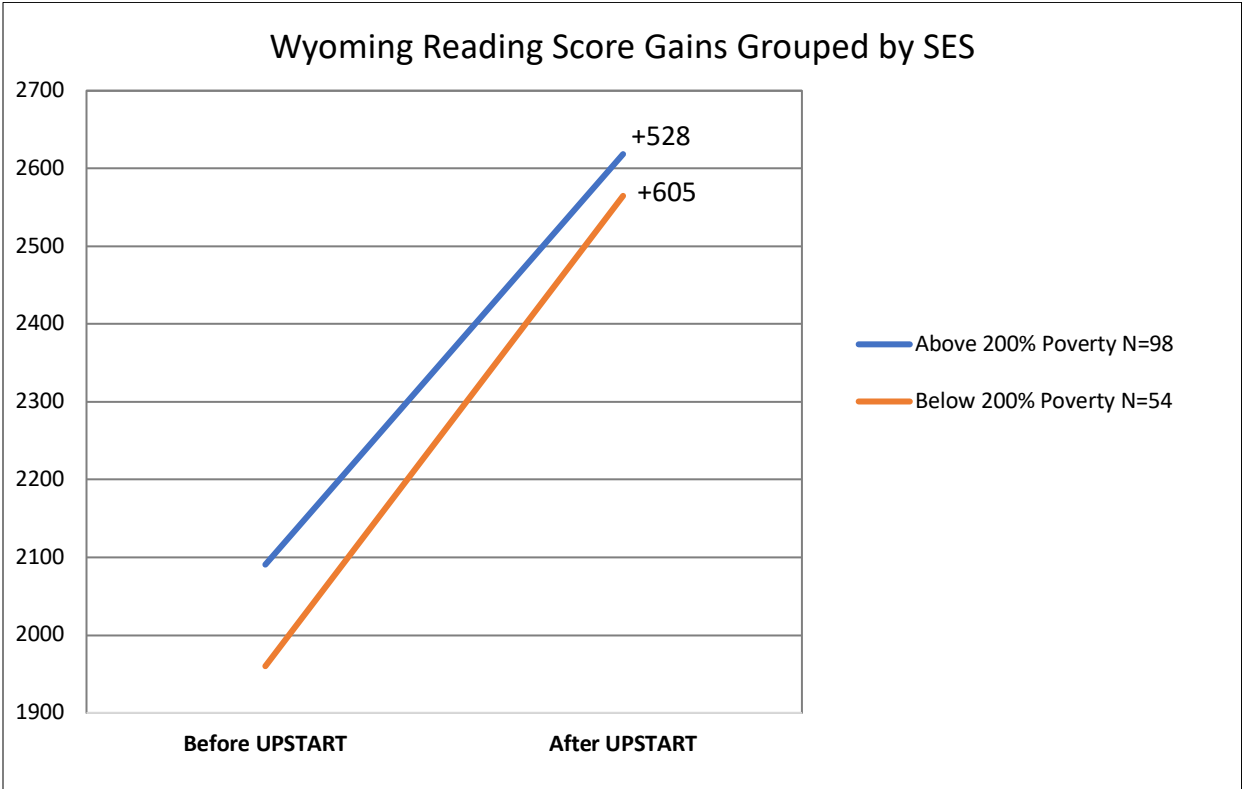
\* Highest possible level for this skill

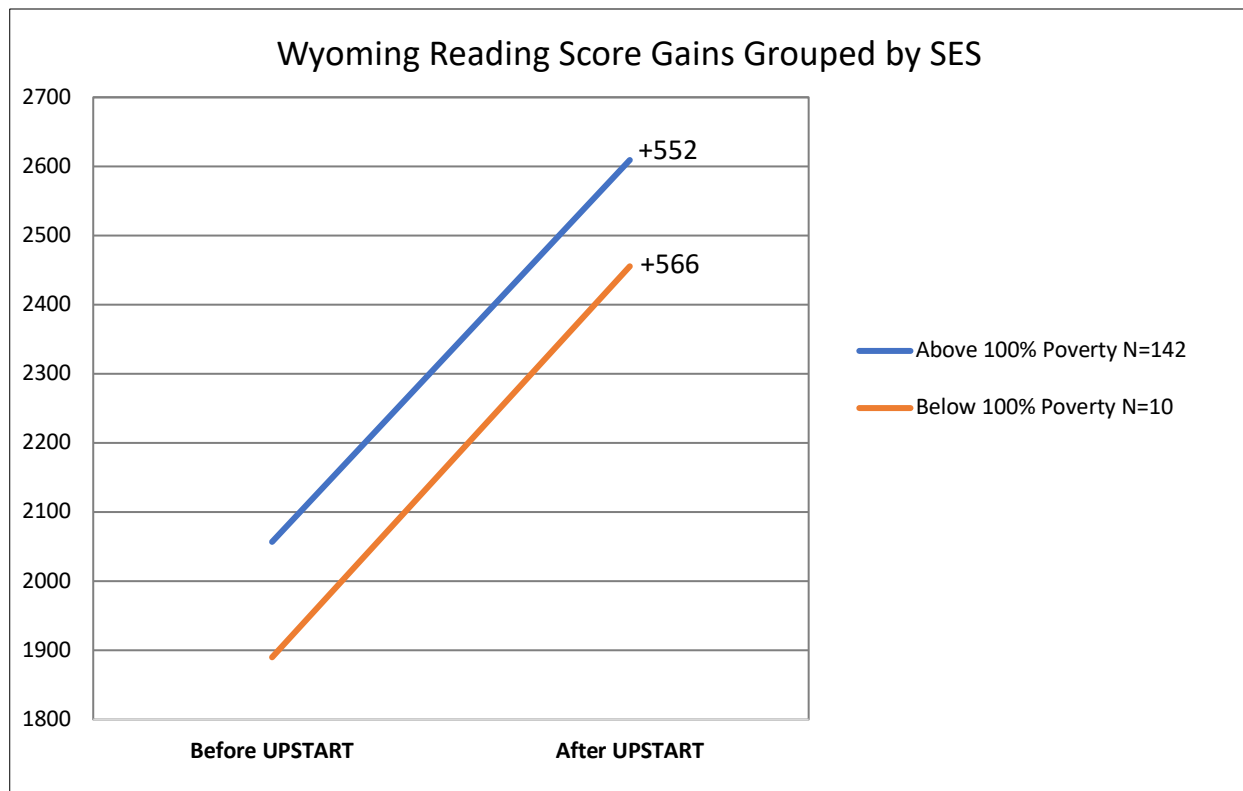


The following chart shows mean results for WACS pretest and posttest, grouped by subtests:

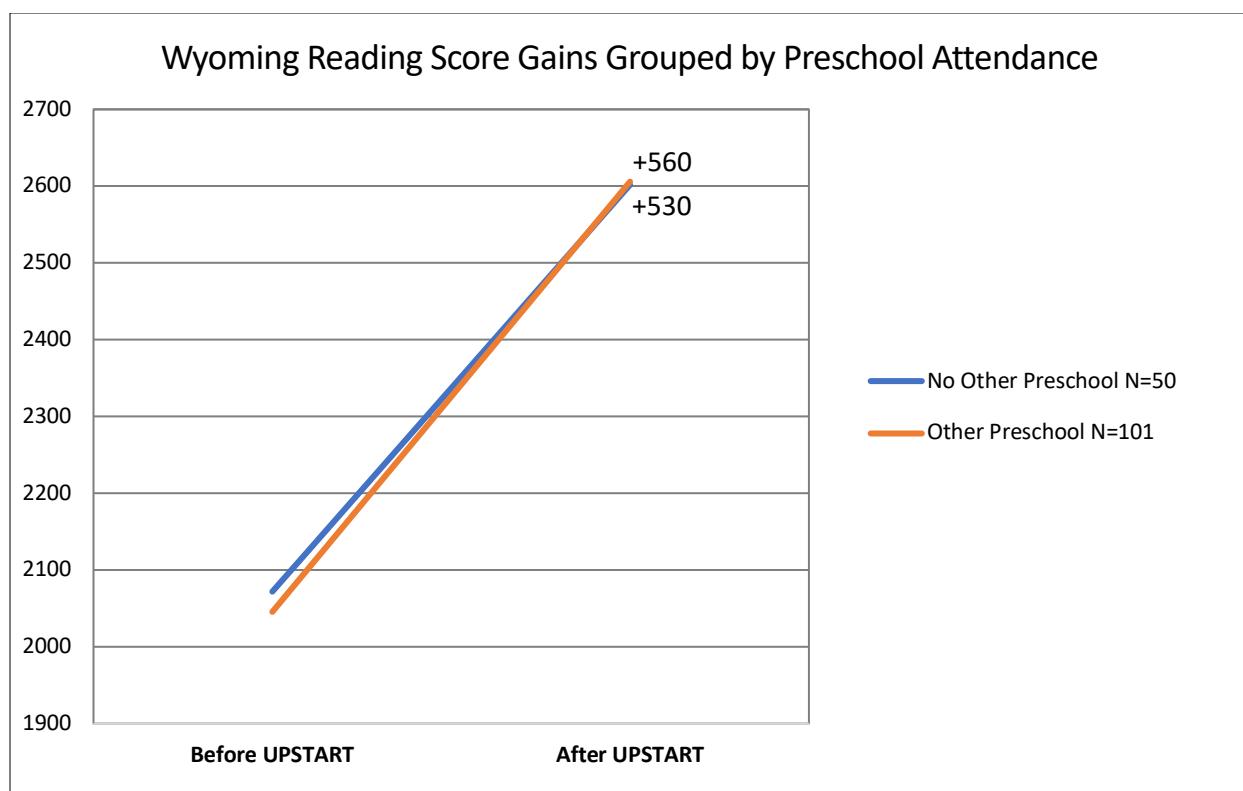


The following charts show WACS gains grouped by socioeconomic status (SES) for the pilot program. The numbers within the chart indicate point score gains from pretest to posttest.

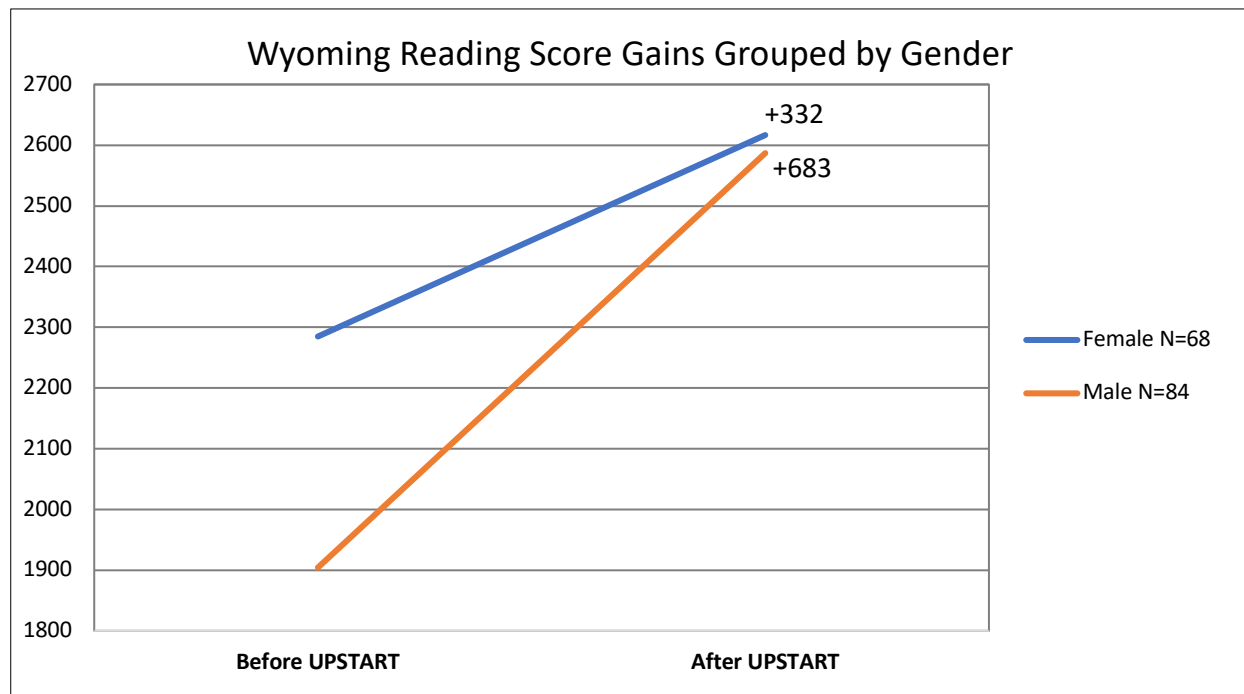




The following chart shows WACS gains grouped by preschool attendance for the pilot program. The numbers within the chart indicate point score gains from pretest to posttest.



The following chart shows WACS gains grouped by gender for the pilot program. The numbers within the chart indicate point score gains from pretest to posttest.



The following table shows mean final WACS scores and their grade equivalents grouped by reported parent/household income level.

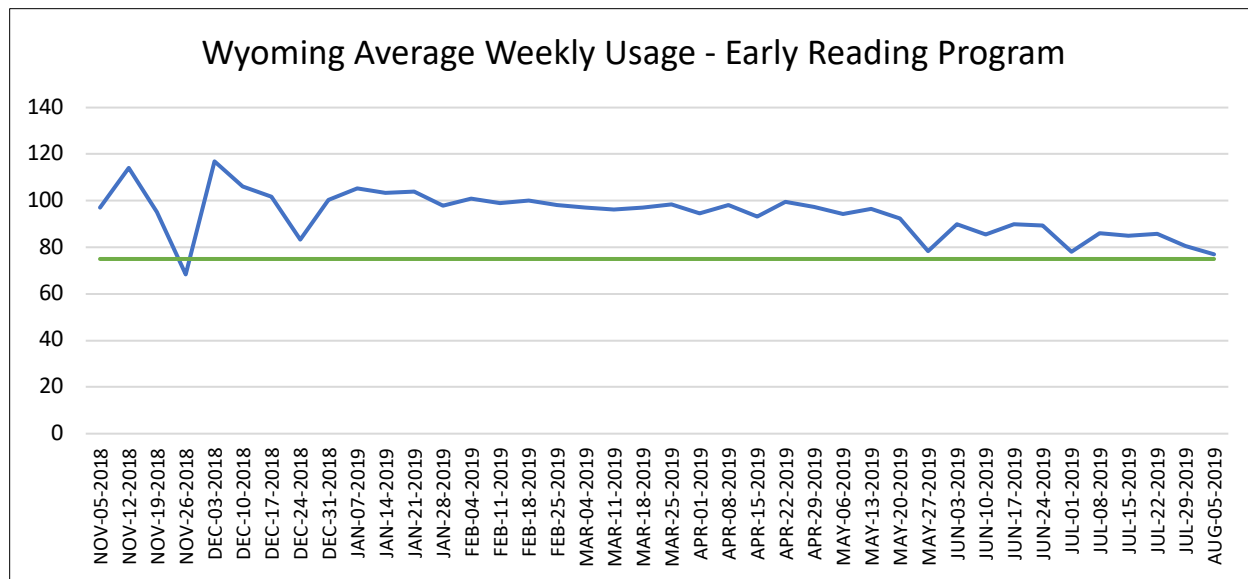
| Parent/Household Income Level | Final WACS Score | Grade Equivalent                | N Size |
|-------------------------------|------------------|---------------------------------|--------|
| \$ 0 - 16,240                 | 2360.38          | Kindergarten Intermediate       | 8      |
| \$ 16,241 - 20,420            | 2366.50          | Kindergarten Advanced           | 4      |
| \$ 20,421 - 24,600            | 1832.00          | Preschool Advanced              | 1      |
| \$ 24,601 - 28,780            | 2654.33          | Kindergarten Intermediate       | 6      |
| \$ 28,781 - 30,028            | 2209.00          | Kindergarten Beginning          | 1      |
| \$ 30,029 - 32,960            | 2678.50          | Kindergarten Advanced           | 2      |
| \$ 32,961 - 37,757            | 2872.75          | Kindergarten Advanced           | 4      |
| \$ 37,758 - 40,840            | 2611.50          | Kindergarten Intermediate       | 2      |
| \$ 40,841 - 41,320            | 2751.00          | Kindergarten Advanced           | 3      |
| \$ 41,321 - 45,485            | 2419.50          | Kindergarten Intermediate       | 4      |
| \$ 45,486 - 45,500            | 2587.00          | Kindergarten Intermediate       | 3      |
| \$ 45,501 - 49,680            | 2502.67          | Kindergarten Intermediate       | 3      |
| \$ 49,681 - 53,860            | 2522.57          | Kindergarten Intermediate       | 7      |
| \$ 53,861 - 57,560            | 3068.25          | 1 <sup>st</sup> Grade Beginning | 4      |
| \$ 57,561 - 58,040            | 2836.00          | Kindergarten Advanced           | 1      |
| \$ 58,041 - 60,943            | 2390.50          | Kindergarten Intermediate       | 8      |
| \$ 60,944 - 62,220            | 2603.17          | Kindergarten Intermediate       | 6      |
| \$ 62,221 - 65,920            | 2686.17          | Kindergarten Advanced           | 6      |
| \$ 65,921 - 66,400            | 2591.00          | Kindergarten Intermediate       | 2      |
| \$ 66,401 - 68,672            | 2615.00          | Kindergarten Intermediate       | 1      |
| \$ 68,673 - 70,580            | 2359.17          | Kindergarten Intermediate       | 6      |
| \$ 70,581 - 74,280            | 2324.00          | Kindergarten Beginning          | 1      |
| \$ 74,281 - 76,401            | 2500.25          | Kindergarten Intermediate       | 4      |
| \$ 76,402 - 82,640            | 2702.80          | Kindergarten Advanced           | 5      |
| \$ 82,641 - 84,130            | 2629.00          | Kindergarten Intermediate       | 2      |
| \$ 84,131 - 91,858            | 2535.11          | Kindergarten Intermediate       | 9      |
| \$ 91,859 - 99,587            | 2643.33          | Kindergarten Intermediate       | 3      |
| \$ 99,588 - 107,720           | 2668.00          | Kindergarten Advanced           | 10     |
| \$ 107,721 - 116,080          | 2616.33          | Kindergarten Intermediate       | 6      |
| \$ 116,081 - 124,440          | 2622.22          | Kindergarten Intermediate       | 9      |
| \$ 124,441 - 132,800          | 2552.50          | Kindergarten Intermediate       | 2      |
| \$ 132,801 - 141,160          | 2812.00          | Kindergarten Advanced           | 1      |
| \$ 141,161 - 150,000          | 2769.00          | Kindergarten Advanced           | 1      |
| \$ 150,001 - 250,000          | 2682.13          | Kindergarten Advanced           | 8      |
| \$ 250,001 +                  | 3263.25          | 1 <sup>st</sup> Grade Beginning | 4      |



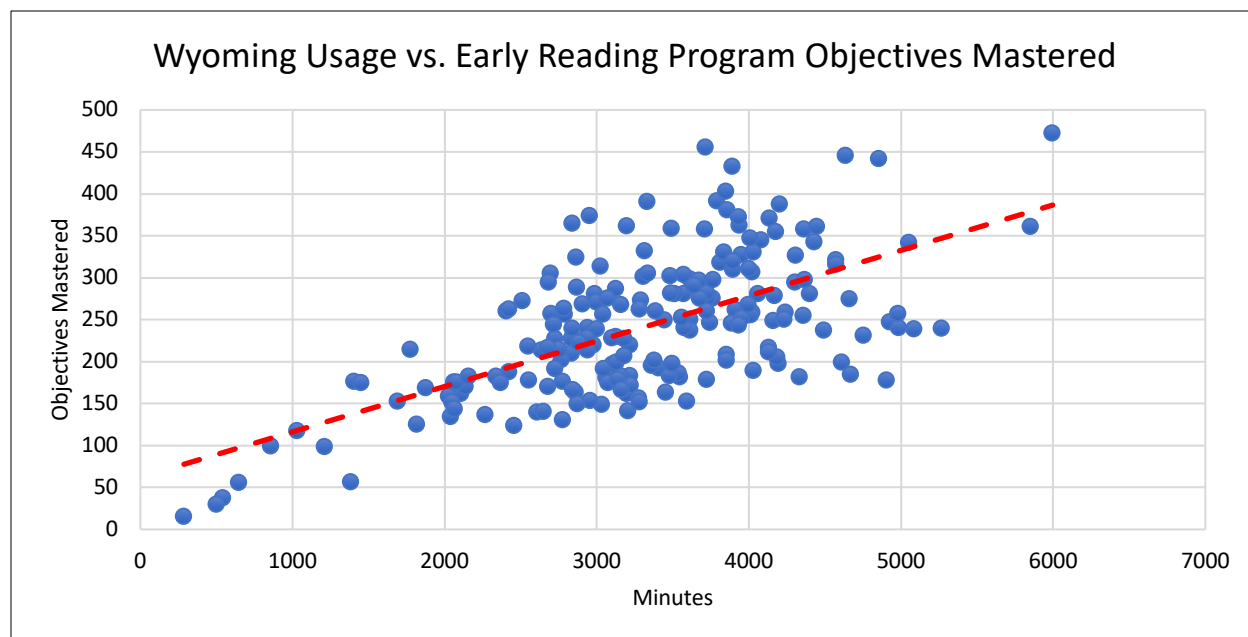
## Other Data Reporting from the Wyoming Waterford UPSTART Pilot Program

**Average Weekly Usage:** The following chart shows Wyoming participants' average reading usage on a weekly basis, as shown by the blue line. The green line indicates the recommended usage criterion of 75 minutes per week.

- For **39 out of 40 weeks**, average weekly usage exceeded the recommended usage requirement of 75 minutes per week, indicating **significant parental engagement** under the pilot.
- The average reading usage for Wyoming participants was **94.30 minutes per week**.
- The average total usage for the pilot was **3,319.54 minutes** from November 2018 through August 2019.

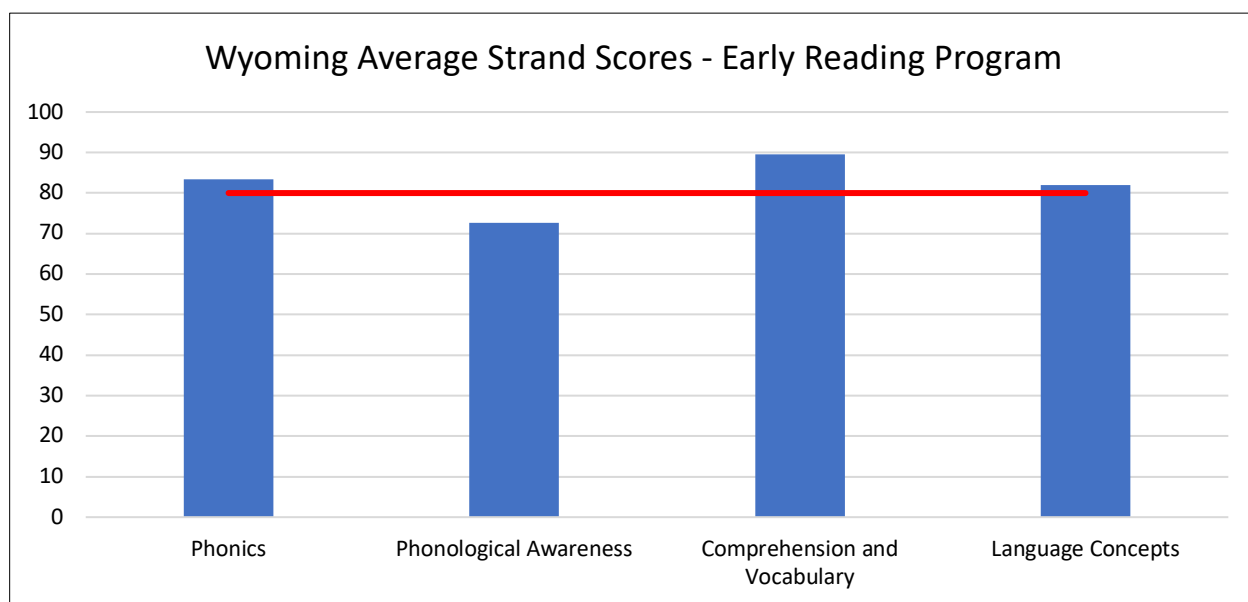


**Usage vs. Objective Mastered Correlation:** The following chart displays the relationship between minutes of Early Reading Program usage and number of objectives mastered. Each blue dot represents an individual student's usage. The red dotted line indicates that **students with higher usage tend to have a higher number of objectives mastered**.



**Reading Strand Scores:** Reading strand scores are scores for subskills (phonics, phonological awareness, comprehension and vocabulary, and language concepts) as a percentage of 100. A score of 80 or higher within the Early Reading Program represents mastery, which is the goal of the cognitively based Waterford UPSTART program. Mastery is the basis for more advanced learning (especially the transition from pre-reading skills to reading), so the foundation has been set in the early months of the program for continued success as the program progresses. The sequencer, within the software, individualizes instruction to provide remediation until a child achieves mastery.

The following chart illustrates the average score, organized by strand, for all students who scored on a given strand for the Early Reading Program. The red line represents the expected average score of 80. This chart shows that **the average score for three of the four Early Reading Program strands was at or above 80.**



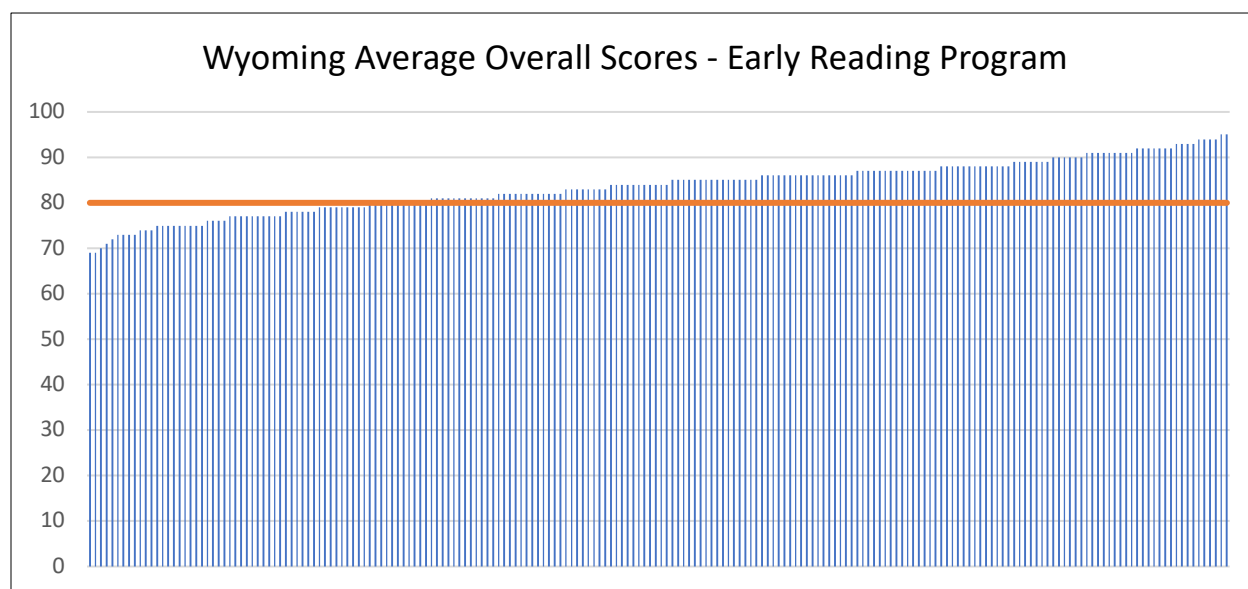


For the Wyoming Waterford UPSTART pilot program, the final average:

- **Phonics** score was **83.39**
- **Comprehension and Vocabulary** score was **89.59**
- **Phonological Awareness** score was **72.71<sup>2</sup>**
- **Language Concepts** score was **81.92**

**Average Overall Reading Scores:** The following chart shows the average overall score per student for reading. The orange line emphasizes the expected average overall score, 80, which represents “mastery.” Each blue bar represents the score of an individual student. This chart highlights the achievement level of students.

- The average overall score for students was **83.59**.
- **75.49%** of students had an **overall Early Reading Program score of 80 or higher**.



**Parent Satisfaction:** Parents/guardians participating in the Wyoming Waterford UPSTART pilot program completed a comprehensive survey to provide feedback related to their, and their child’s, experience in the program.

Responses to Survey Questions:

| % Agree         | Survey Question  |
|-----------------|--|
| <b>99% YES</b>  | Waterford UPSTART was helpful in preparing my child for kindergarten                           |
| <b>100% YES</b> | Participating in Waterford UPSTART was beneficial to both me and my child                      |
| <b>100% YES</b> | I would recommend the program to my family members and/or friends                              |
| <b>98% YES</b>  | If my Waterford UPSTART child had/has younger siblings, I would enroll them in UPSTART         |
| <b>96% YES</b>  | Because of Waterford UPSTART I feel more prepared to support my child’s education              |
| <b>95% YES</b>  | Because of Waterford UPSTART, I understand what abilities children need to be prepared to read |

<sup>2</sup> Phonological awareness is an individual’s understanding of the sound structure of words (e.g., what rhymes with cat?). As such, it is a difficult skill to learn, aligned closely to age, with significant growth seen even in month variations. While we still aim to help students master this skill through our software, we consistently see the lowest performance on this skill strand.

| % Agree  | Survey Question   |
|----------|---|
| 99% YES  | Because of Waterford UPSTART, I understand what abilities my child has to be able to read |
| 88% YES  | Because of Waterford UPSTART, my child and I spend more time exploring letters and words  |
| 69% YES  | Because of Waterford UPSTART, I read more with my child at home                           |
| 98% YES  | I feel prepared to help my child in school next year                                      |
| 97% YES  | I feel that my child is prepared for kindergarten   |
| 94% YES  | It was helpful to have a consistent routine for when my child would use Waterford UPSTART |
| 99% YES  | Waterford UPSTART representatives were friendly and polite when I spoke with them         |
| 100% YES | Waterford UPSTART representatives were knowledgeable about the program and the software   |
| 99% YES  | Waterford UPSTART representatives helped solve any issues I had                           |
| 100% YES | In general, did your child enjoy using the Waterford UPSTART software?                    |
| 99% YES  | Was the software age appropriate?   |



#### Additional Comments:

- I have seen my child go from recognizing and knowing letter sounds to being able to sound out words and read simple books. This program has given my daughter a huge head start in beginning kindergarten.
- Absolutely amazing! I was so impressed with the program and the reports. I used the reports to help me know where I could help him more. This is a wonderful program that I will recommend to all!
- Our child loved the program and we saw noticeable improvement in his reading. It provided practice and techniques that we were unaware of. It helped our child get into a gifted and talented program.
- I know Waterford UPSTART is the reason my child (and my older child who used the program too) can read!
- He became interested in learning. He looked forward to using the program and moving forward in the program.
- We are impressed at how many words he reads now. The program did great at transitioning him from learning letters to reading words.
- My daughter went from not being able to count to 10 or knowing her ABC's to reading at a 1<sup>st</sup> grade level. So happy for her progress.



- Initially it helped my child learn to use the mouse. She'd never done that. She learned words and how to read. I can't believe how far she's come! We enjoyed times sitting together while she did her work!
- It influenced my son to become aware of what would be expected of him going into kindergarten and what it takes to learn new things.
- This program influenced my child to have a schedule. He reminds me every morning that it's time for his schooling and time for his vitamins!
- She really learned quite a bit from the songs in the program. They really helped her memorize her letters and numbers.
- This program was fantastic.
- My son blossomed into an eager reader and his love of learning grew so much.
- She is very proud that she can read.
- My child was prepared for his kindergarten readiness test and was not required to attend summer school to get up to speed.
- I think Waterford UPSTART was great for my daughter! My son is signed up for this Fall, so we must like it!
- She learned so much so quickly it was great.
- I was very happy when my child started reading and sounding out words on her own.
- He was very independent and I think it built his confidence.
- It was so exciting when he started reading by himself!
- She has been doing math and other things that I didn't know she could do.
- My son now reads level 2 books!

