

Comprehensiveness, Frequency, and Consistency of Science in Elementary Schedules: “Are We Doing Science Yet?”

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Abstract

Science in the elementary grades is often deprioritized in comparison to ELA and mathematics. We wondered, how comprehensively, frequently, and consistently is science in elementary schools' schedules? In this study, we reviewed daily schedules for 14 schools in 9 districts across the U.S. to qualitatively examine how science is represented on the daily instructional schedule. These schools were selected as “best case scenarios” recommended by district or state science leaders as places where science is taken seriously. We complement these schedule data with data from 21 interviews with teachers, science specialists, and school leaders to better understand how science actually appears in children's daily instructional experiences. Our findings suggest that, in these schools, science is taught comprehensively (though not as comprehensively as ELA or mathematics), has the potential for being taught frequently (even in the lower elementary grades), and is taught somewhat consistently (albeit usually in some kind of rotation with social studies). The paper closes with implications for how school schedules could be crafted to make science comprehensive, frequent, and consistent, as well as some pitfalls that could be avoided as schedules are developed.

Literature Review

A recent report from the National Academies of Sciences, Engineering, and Medicine in the U.S. synthesized the literature on preschool through elementary grades science and engineering (NASEM, 2022). While Conclusion 1 of the report states, “Children engage in meaningful science and engineering from a very young age, across multiple contexts and settings”, three additional conclusions note concerns about children's opportunities for science learning. The report emphasizes that science is often put on the back burner in elementary schools, while English Language Arts and mathematics take priority as subject areas of focus, in part due to testing requirements around those subject areas. The report further notes that interventions to provide additional academic support (e.g., for emergent multilingual learners or children with learning differences) may negatively impact those students' science instructional time as well. Based on the synthesis of the research and the resulting conclusions, the report put forward a set of recommendations, including Recommendations 1 and 2 that suggest that state policy makers and district and school leaders, collectively, bear responsibility to ensure that science is “comprehensively, frequently, and consistently taught in all preschool through elementary settings” (NASEM, 2022, p. 245).

We take up the issue of the (de)prioritization of science in the elementary grades through an examination of daily classroom schedules. We look at these elementary schedules to determine how comprehensive, frequent, and consistent the scheduling of science is. While most explorations of questions like this have been large scale survey studies (e.g., Banilower et al., 2018) to determine the number of instructional minutes, in this study, we look at a relatively small number of classroom schedules in a more qualitative manner, to gain insight into how schools work on the problem of scheduling science.

While NASEM (2022) did not explicitly define “comprehensive, frequent, and consistent”, we operationalize these terms as follows. By *comprehensive*, we mean that science is taught across all grades and on par with how other academic subjects are taught (e.g., in terms of amount of time per day). By *frequent*, we mean that science is taught often during the school week and for sufficient blocks of time to

allow for sensemaking about natural phenomena. By *consistent*, we mean that science is taught in a regular routine, that students do not miss science on a regular or irregular basis for interventions (which typically focus on literacy or mathematics for students who are not meeting grade-level expectations) or enrichments (e.g., art class, band), and that teachers do not idiosyncratically swap their science block with other subject areas or drop their science block altogether. Our language in these definitions is necessarily subjective in places (e.g., what one might mean by “sufficient” or having science taught “many days” during the school week or “regularly” could certainly vary). We also recognize that meeting all three of these standards is setting a high bar for schools. However, our overarching intent here is to be descriptive, not evaluative, to gain insight into how schools make this work, given the limits in time in the school day, week, and year.

It is clear that these ideals are not currently being met in the US overall. National survey data (Banilower et al., 2018; Plumley, 2019) suggests that science is taught, on average, around 20 minutes per day at the elementary grades; in ELA, the average is 87 minutes per day and in math, 58 minutes per day, with these differences even more exacerbated in the lower elementary grades (PK-2). Furthermore, science is not taught on a daily basis; across the elementary grades, in almost 40% of elementary classrooms, science is taught three or fewer days per week, every week, and in another almost 40% of classrooms, science is taught some weeks but not every week. In sum, “the large majority of elementary classes receive science instruction only a few days a week or during some, but not all, weeks of the year” (Plumley, 2019, p. 15), and science receives fewer instructional minutes per day, as well.

We see this lack of science as an equity issue. Science allows children to explore natural phenomena and answer questions they are interested in (Duckworth, 2006; Eshach & Fried, 2005). Children deserve to experience the wonder and joy of learning about the natural world around them (NASEM, 2022); science is a civil right (Tate, 2001). Furthermore, having opportunities to learn in science at the elementary level can support the development of their identities as science people (Carlone, Scott, & Lowder, 2014) and lays the foundation for future academic interest and success as well. By precluding these opportunities to learn, by excluding or limiting science from the daily schedule, children who have historically been marginalized in science—children of color, children from Indigenous backgrounds, emergent multilingual learners, girls, children with learning differences and/or learning disabilities, and others—may be further marginalized, particularly given the disparities in how science is taught across settings in the US (Banilower et al., 2018).

Science might be less of a focus in the elementary grades in the US for a host of reasons (see, e.g., Banilower et al., 2018; Marshall et al., 2021; NASEM, 2022; NASEM, 2015; Roth, 2014). Some of these can include federal education policies, a lack of curriculum materials and other instructional resources at the elementary level, limited opportunities for professional development for elementary science, and school cultures focused on other priorities. Thus, while elementary teachers often lack confidence in science teaching (Banilower et al., 2018), systems-level factors likely also play key roles in inhibiting (or conversely, promoting) the inclusion of science in elementary classrooms.

With this study, we do not intend to make sweeping claims about the number of instructional minutes for science; those data already exist in strong form. Instead, here we hope to explore more deeply the variability in *how* science is scheduled during the elementary day. That is, we want to address the overarching question, *How do schools identified as having strong system-level support for science represent science in their school-wide or classroom schedules?* Our specific research questions focus on, and we organize our results around, the comprehensiveness, frequency, and consistency of science in these schools’ schedules.

Methods

This study is part of an NSF-funded research project focused on the work of developing school-level and system-level elementary science learning environments in the US to support the visions of the *Framework for K-12 Science Education* (NRC, 2012) and the Next Generation Science Standards (NGSS Lead States, 2013). As a part of that larger research effort (e.g., Haverly et al., 2022; Haverly et al., 2023; Lyle et al., 2023), we collected daily classroom schedules from 9 districts and 14 schools across the US. These districts were identified (e.g., by state science leaders) as making robust efforts toward supporting elementary science. The schools, in turn, were identified by district science leaders as similarly making strong efforts toward improving elementary science instruction. Thus, rather than being representative of schools nationwide, these are, in some ways, best-case scenarios – they are places where elementary science teaching is taken seriously. The schools are in 5 different states (California, Massachusetts, Michigan, Louisiana, Oklahoma), across 4 regions of the country. They are situated within urban, suburban, rural, and charter public school systems. Tables 1 and 2 summarize some of the characteristics of the districts.

Table 1: School District Characteristics

<i>District</i>	<i>State</i>	Total enrollment (K-12)	# of elementary schools	Type of district	Urbanicity
<i>Bartlett</i>	Massachusetts	3,000	5	Public	suburban
<i>Brookeport</i>	Massachusetts	45,000	75	Public	urban
<i>Chester</i>	Oklahoma	35,000	30	Public	urban
<i>Fairby</i>	California	30,000	25	Public	suburban
<i>Jasper</i>	Oklahoma	12,000	5	Public	suburban
<i>King Park</i>	Louisiana	5,000	5	Public charter	urban
<i>Norhaven</i>	Oklahoma	14,000	15	Public	suburban
<i>North Valley</i>	Michigan	6,000	5	Public	suburban
<i>Rivercrest</i>	Michigan	500	1	Public	rural

Note: School & enrollment counts have been approximated for anonymity.

Table 2: District Student Demographics (K-12; as indicated by district)

<i>District</i>	African American/ Black	Asian (any Race)	Native American	Hispanic (any Race)	Multiple Races	White	English Learners	Students with disabilities	Socio- economically disadvantaged
<i>Bartlett</i>	7%	18%	0%	7%	4%	64%	5%	14%	15%
<i>Brookeport</i>	29%	9%	0%	42%	3%	15%	29%	22%	63%
<i>Chester</i>	21%	2%	3%	58%	5%	12%	41%	19%	58%
<i>Fairby</i>	2%	70%	0%	14%	3%	10%	13%	9%	20%
<i>Jasper</i>	7%	13%	6%	13%	11%	50%	15%	19%	35%
<i>King Park</i>	92%	0%	0%	5%	1%	1%	3%	14%	93%
<i>Norhaven</i>	6%	3%	4%	15%	14%	57%	6%	19%	44%
<i>North Valley</i>	7%	48%	1%	5%	3%	36%	20%	6%	12%
<i>Rivercrest</i>	2%	1%	38%	2%	0%	57%	0%	13%	67%

Note: Race/ethnicity categories vary across states and are synthesized here. Values are approximate percentages

Upon our request, each school sent us a daily and/or weekly school-wide or classroom schedule. What we received was highly idiosyncratic. In our coding of these 11 school-wide schedules and 12 teacher/classroom schedules, we engaged in three phases of work. Phase 1 focused on an initial screening to determine if science was visible on the schedule. In several cases, this screening ruled out our use of the schedule for further analysis—science was not visible at all. Thus, in our subsequent analyses, we focused on 6 schoolwide schedules and 11 classroom schedules that made it through this Phase 1 screening, for a total of 17 schedules. Table 3 provides a summary of our participants and their schedules.

Table 3: Schedules for which science is visible

<i>District</i>	<i>School (n=14)</i>	<i>Participant (n=21)</i>	<i>Participant role</i>	<i>Type of schedule</i>
<i>Bartlett</i>	Crossroads	Kent	Principal	Schoolwide
	New Rockford	Marinda Tessa Jacqueline	Principal Grade 3 teacher Grade 1 teacher	Schoolwide
<i>Brookeport</i>	Clairton	Jade	Grade 2 teacher	Classroom
<i>Chester</i>	Carlotta Walls	Noelle	Principal	Schoolwide
	Faraday	Monica	Principal	Classroom (Kenneth)
<i>Fairby</i>	Gartness	Vedi	Science specialist	Schoolwide (sci. specialist)
<i>Jasper</i>	Riverview	Dana Teagan	Grade 1 teacher Kindergarten teacher	2 classrooms
	Valleyview	Viola	Instructional coach	Multi-classroom
<i>King Park</i>	Triumph	Kyler	Grade 3 science and social studies teacher	Classroom
<i>Norhaven</i>	Lakeview	Pamela Tori Fern	Principal Grade 2 teacher Grade 5 teacher	Schoolwide
	Willow Park	Elizabeth	Principal	Schoolwide
<i>North Valley</i>	Brookland	Joie	Grade 2 teacher	Classroom
	Vernon	Sheryl Liam	Grade 2 teacher Grade 4 science and math teacher	2 classrooms
<i>Rivercrest</i>	Rivercrest	Hope Jordie	Grade 5 science and ELA teacher Grade 1 teacher	2 classrooms

Notes: All proper names are pseudonyms (for participants, schools, districts, and areas).

When unspecified, “teacher” implies a self-contained classroom.

Rivercrest School is the single K–12 school in the district of Rivercrest, in the very rural area of Eastfort. To help clarify, we refer to the school name and area, rather than school name and district, in this case.

Phase 2 of the analyses involved coding each schedule to answer a set of analytic coding questions. We developed a matrix to characterize several dimensions of the schedule (e.g., number of minutes for science; grade levels in which science is taught). For schoolwide schedules, it was sometimes helpful to have a common point of comparison, so we used third grade as our standard grade, when appropriate. Table 4 lists these coding questions and provides samples of how schedules were coded.

Table 4: Coding questions and examples

<i>Coding question</i>	<i>Examples</i>
Is science visible on the schedule?	Clearly indicated No
How is science designated?	Science Science / social studies Science / Social Studies / Art / Computer
In what grade levels is there designated time for science?	K-5 This is a [grade-level] schedule
How many minutes is the science block?	For school-wide schedules: Varies, between X minutes for grade A and Y minutes for grade B. 3 rd grade: Z minutes. For classroom schedules: X minutes
How frequently is science on the schedule?	There is a daily SS/Science block scheduled 3 days a week - M/W/F <i>(These codes were highly variable due to the variability of the schedules themselves.)</i>
What is the positioning of science?	Across the day. No obvious pattern. In the afternoon, but not the very last block of the day.
What is the relationship between science and social studies?	Shares a time block with SS. No social studies on the schedule at all.
What is the relationship between science and ELA?	For a school-wide schedule: ELA has 90 minutes at each grade level 1-5. This is 2x as much time as science. For a classroom schedule: ELA has 155 minutes (1st grade). 5x as much time as science, and daily.
What is the relationship between science and math?	For a school-wide schedule: Math has 40-45 minutes. Equivalent to the amount of time for science. For a classroom schedule: Math has 60 minutes. About 2x as much time as science, and daily.
Is there designated intervention time? If so, how?	Yes, all grades Not visible in this schedule
Is there designated specials time? If so, how?	Yes, all grades No, not marked on daily schedules -- but each schedule does make it clear that each classroom has one special each day. Unclear when those occur. Yes, for PE, art, music.

In Phase 3, we examined the completed matrix to characterize the data and look for patterns. For example, we determined a range of minutes for science, ELA, and mathematics, and made lists of which schools or classrooms had which characteristics (e.g., designated specials time).

We complement our analyses of the schedules with n=21 interviews with teachers and school leaders, to provide a more complete perspective on how science is scheduled in these schools. These interviews draw on a semi-structured interview protocol in which school leaders and science and classroom teachers were asked about how science instructional time is organized, along with other questions informing the work of the larger project. We focused our attention on the responses to questions

that were directly about science instructional time, but also read the transcripts as a whole to check for comments that would help to explicate or extend our understanding of how science was being scheduled and taught.

Findings

Here, we focus our analyses on the schedules themselves, organizing our findings around the comprehensiveness, frequency, and consistency of science scheduling. (The appendix provides some examples of schoolwide and classroom schedules.) We round out these analyses with excerpts from our interviews, which help us make sense of the schedules and how school leaders and teachers approach the scheduling of science.

Comprehensiveness

Our first question is, How *comprehensively* is science scheduled in the elementary classrooms? Here, we asked analytic questions like: In what grade levels is science taught? How is science scheduled in comparison to ELA and to math?

Our analyses of the schoolwide schedules showed that science is taught in all grade levels of four of the six schools about which we can identify grade levels. In one of the remaining schools (Bartlett's New Rockford School), kindergartners have a class called "Discovery" on the schedule, which may involve science. Thus, overall, these schoolwide schedules show wide coverage of science in at least grades 1-5.

Science has fewer instructional minutes than ELA and math in every case where we can make an inference (i.e., excluding comparisons where necessary in schools where a science specialist or coach taught science or where classrooms were not self-contained), though in two schedules (Carlotta Walls in Chester and Liam's classroom at Vernon School in North Valley), science/social studies (as a block in which the subjects are swapped) has similar instructional minutes as mathematics. Generally, the instructional time for ELA and math on these schedules is similar to findings in national surveys: roughly 90 minutes (or more) for ELA and roughly 60-90 minutes for math, every day – with substantial variability across settings. At two schools (Rivercrest School in the Eastfort rural area and Jasper's Riverview School), in at least one grade, ELA is scheduled for about 2.5 hours (150 minutes) each day. Generally, ELA is scheduled for between 2-4 times as much instructional time as science, with one schedule showing about 5 times as much time for ELA as for science. Math is generally scheduled for about twice as much time as science.

Teachers and other school staff that we interviewed emphasized that they wanted to teach science—often because they saw how much the children enjoy it. For example, Tori (at Lakeview School in Norhaven) noted,

We know that the kids love science. They're so excited about science. They will ask you when you come in when is science. The first day of school, "Are we doing science yet?" I'm like, "Guys, give us a couple weeks. Then we'll get to science." I'm like, "We got to learn how to turn in our papers first." They're eager and excited about it. When they're excited about it, it makes it something that we know they want to learn, and we want to teach it to them.

Similarly, Sheryl from Vernon School in North Valley, said, "I think the actual teaching of science is really enjoyable. It's exciting because the kids are excited about it. That makes me excited."

These two teachers both, though, acknowledged that science is lower priority in their schools than ELA and mathematics. Tori emphasized that science is "being taught here", but then went on to say, "I do

know it's probably not the highest priority. Reading, always our highest priority, closely followed by math." Similarly, Sheryl said, "I also, unfortunately, feel like science doesn't get weighted as equally as math and reading and writing. I feel like, maybe, for me, the stakes aren't there as much."

When asked whether the emphasis on testing in ELA and math made a difference in how or how much she taught science, Sheryl said,

I think I feel like if the kids didn't love it as much as they do, it [the heavy emphasis on testing in ELA and math] probably would impact the way that I taught it. I might not feel like spending as much time on it. The fact is every time I put science on our daily schedule, they're like, "Yes, yes. I can't wait for science."

While math and (especially) ELA received more instructional time than science, some teachers emphasized how they tried to incorporate some science learning into their ELA blocks. For example, Dana, from Riverview School in Jasper, noted, "We do have a set time for science, but we incorporate it a lot in our literacy block. Even our writing block too." (Recall that Riverview was a school where ELA was scheduled for 2.5 hours per day.)

In sum, our findings suggest that science is taught fairly comprehensively, in that it is taught at all or almost all grade levels. It is not taught as comprehensively as math or, especially, as ELA, in keeping with findings from national surveys.

Frequency

Our second main question is, How *frequently* is science scheduled in the elementary classrooms? Here, we asked analytic questions like: How often is science taught? For how long each day (or each week) is science taught? Are there differences across grade levels?

The schedules show that in all of these schools, there is a science block (often shared) every day. While this does not mean science is likely to be taught every day, it does mean there is the *potential* for science being taught frequently. Science is typically swapped with social studies. (Schools may teach science on Mondays, Wednesdays, and Fridays, and social studies on Tuesdays and Thursdays, for example, or they might teach science some weeks and social studies other weeks.)

In most of our schools, this "science block" is scheduled for around 45 minutes. Because of the rotation (usually with social studies), the roughly 45 minutes on the daily schedule is in keeping with national findings that indicate an average of about 20 minutes/day for science. As one exception, in Jade's classroom at Clairton School in Brookeport, science is scheduled for 50 minutes, once a week, plus two additional 50-minute periods each month with the science specialist (bringing Jade's average daily instruction across a month to 15 minutes/day). As another exception, in Sheryl's classroom in Vernon School in North Valley, the science/social studies block is scheduled for 25 minutes per day—which would imply less than 15 daily minutes for science, on average. At the other end of the spectrum, Crossroads School in Bartlett schedules a 60-minute science block daily (again, rotating with social studies).

Generally, based on analysis of the schoolwide schedules, we saw less time for science in the lower grades than in the upper grades, except in Carlotta Walls in Chester, where the *daily* kindergarten schedule includes a total of 70 minutes on the schedule for science (and social studies). In Carlotta Walls, where science shares a block with social studies (discussed further below), there are *two* such shared blocks every day, in every grade level except first grade. This suggests the possibility of science being

taught daily (i.e., frequently) in this school, because science would not swap with social studies. Interview data suggests that, indeed, science was intended to be a daily occurrence at Carlotta Walls School.

Table 5 provides examples of the range of ways teachers and other school staff described their instructional schedule for science.

Table 5: How participants described their instructional schedule for science

<i>Participant</i>	<i>Description</i>
Kent (principal), Crossroads, Bartlett	The block is a 60-minute block, and they're either doing science or social studies during that block every day
Monica (principal), Faraday, Chester	Interviewer: In the meantime, they're still expected to teach science daily. Monica: Absolutely. Every day.
Teagan (teacher), Riverview, Jasper	I try to do our science curriculum from three to five times a week; usually, I do it. I have a 30-minute block that I've scheduled off for it. Actually, I really do it about four times because I do social studies one day a week. Then, I do science the other four.
Viola (instructional coach), Valleyview, Jasper	Some teachers do science for a week, social studies for a week, science for a week, social studies for a week. I have one that does it based off of the month. This month, we're doing science. This month, we're doing social studies.
Jade (teacher), Clairton, Brookeport	We have science on Thursdays, that's a specialty block, so that's that 50-minute block there. ... Every other week, [the science specialist] will come into our room for like 15, 20 minutes, start a lesson, I will finish it, and then he goes into the other first grade starts a lesson, they finish it, and on the other week he's doing that with K-2.
Hope (teacher), Rivercrest (in Eastfort)	Interviewer: I know you teach science to all fifth graders, but what does your school day look like? Hope: ...Usually, I teach my class in the morning and then in the afternoon, I will teach the other fifth grade, both English language arts and science. We probably spend about an hour and a half a week on science instruction is what I would guess. Sometimes weeks more, it depends if the kids are understanding what we're doing or how big of experiments we have going on, but a lot of the times science would be like, "Oh, let's check in on our science experiment," and then move on to doing ELA.
Pamela (principal), Lakeview, Norhaven	The expectation is two times a week for 44 minutes. ... [S]ome people teach that science two times 45 minutes, but then you can also, like, if you're working on a social studies unit, you could work on social studies for a longer period of time and then switch and do your science. ... You have to equal out to the same amount of time.
Sheryl (teacher), Vernon, North Valley	The district really wanted to make sure we were allocating enough time for each subject area. They broke up our day and said you should—or our week—and said, "You should be spending this amount on reading, writing, science, social studies, transitions throughout the week." Then as a team, we took those minutes, looked at how we wanted to divide them throughout the week.
Liam (teacher), Vernon, North Valley	The way that we do it in fourth grade here, we have four fourth grade teachers. We work together as pairs. I do math and science lessons for two groups of kids. Then so I'm usually working with my partner [Nolan]. He also does math and science on the other side with the other pair.

In sum, our findings suggest that there is the *potential* for science to be taught frequently, and that this is true even in the lower elementary grades. The amount of time, however, is roughly in keeping with national averages—which is to say, science is not taught for very long, on average, each day in spite of our efforts to recruit best-case scenario schools. Given how variably the schedules present the frequency of science, the data from our interviews helps us make sense of the classroom schedules while further illuminating the wide variability in frequency.

Consistency

Finally, our third research question is, How *consistently* is science scheduled in the elementary classrooms? Here, we asked analytic questions like: How is science scheduled in comparison to social studies? How are interventions and specials scheduled, with relation to science? (In elementary schools, “specials” refers to classes like music, art, or physical education; these classes are often taught by a specialist teacher.)

In interviews, several educators emphasized the importance of having protected time for science on the schedule. Three educators—all from Bartlett—provide examples. Kent, the principal at Crossroads School, noted:

There's this block for ELA every day. There's this block for WIN [What I Need] time, there's this block for math, there's this block for science and social studies. There's a high level of accountability there in that everyone knows they're doing this at the same time, and that it's not being overlooked one day like, 'oh, we're really on this project, so we're just going to skip over this.'

Similarly, Tessa, a teacher at New Rockford School, when asked if science time is protected, responded:

That's an easy answer, that science time is protected. We have 45 minutes for science. We have hour and a half or more for reading, an hour for math. Built into our master schedule for every grade level, there's intervention or extension time.

Jacqueline, another teacher from New Rockford School, compared the current situation, with protected time, to what used to happen in her experience, saying:

Before, sometimes science got pushed out. You ran out of time. Now, you don't run out of time because there's a time for it.

These three Bartlett educators all emphasized how important it was for them to have science visibly on the schedule, and to have some accountability around that schedule.

To make determinations about consistency of science, it was clear we needed to look at how science is scheduled in comparison to social studies, because of how frequently science was blocked with social studies. We could not make determinations about this for four schedules: Gartness School in Fairby, Jade's classroom at Clairton School in Brookeport, Hope's classroom at Rivercrest School in Eastfort area, and Liam's classroom in Vernon School in North Valley. (For example, for Gartness, the schedule we have is from the science specialist, so it does not list social studies.) Among the remaining 13 schedules, in 10 schedules, science shares a block with social studies. Among these 10, two schedules show the block as further shared: with art and/or computer at Willow Park in Norhaven, and with “written expression” in Crossroads School in Bartlett (e.g., taking notes, presenting science research, or doing other literacy practices in a science context, according to Kent at Crossroads). Math and ELA never

shared their blocks with any other subject, with the exception of Hope's schedule at Rivercrest School in the Eastfort area; Hope taught both ELA and science and had one seemingly shared block for both subjects. In the three remaining schedules —Teagan's classroom at Riverview School in Jasper, the schoolwide schedule for Jasper's Valleyview school, and Kyler's classroom at Triumph School in King Park—science has its own block, or at least a block that is constructed by the teacher as its own block. Table 6 summarizes how several teachers discussed their science and social studies time; a few examples were presented in Table 5, as well.

Table 6: How participants discussed their science and social studies time

<i>Participant</i>	<i>Description</i>
Dana (teacher), Riverview, Jasper	[W]e alternate between social studies and science throughout the week. Usually depending on what unit we're on, maybe three days science, two days social studies. Or we might do three days social studies, two days science.
Kyler (teacher), Triumph, King Park	Kyler: We're not allowed to be self-contained anymore, unfortunately, this year. I teach science and social studies. I have an 80-minute block to teach both subjects, so about 40 minutes to teach both. Interviewer: Okay. That's every day? Kyler: Every day except Wednesday. Wednesday's a flex day
Tori (teacher), Lakeview, Norhaven	Tori: We usually do it every other week. We have—typically, I think the way our schedule was originally created, there was two times a week for 45 minutes that you were supposed to have science, and two times a week for 45 minutes you were supposed to have social studies is how it was originally presented. ... Tori: For example, our plant unit, we would do a week of science, but then we needed time for those plants to grow. Then we would do some social studies until we were ready to collect data on our plants. Typically, it's an every other week, and it's usually—because we also teach art usually during that time frame. ...Tori: It's four lessons a week, every other week, is what we do. Interviewer: Got it. Then, the fifth day would be your art time. Tori: Right. Mm-hmm. ... Tori: It's anywhere from twice a week every week to four times a week every other, which in the end, equals out to be about the same amount of time.
Joie (teacher), Brookland, North Valley	There are blocks for science and social studies. [And] sometimes people do one of each per day. Quite often what happens is that during a unit. People will use both blocks for science for a while. Then, switch and use both blocks for social studies for a while. That together those blocks add up to maybe, I think, maybe an hour and 10 minutes. ... I would say we do science for about 45 minutes a day. That hour and 10 sounds a little long for second grade [laughs]. We don't quite get through that long.

While most of the examples in Tables 5 and 6 show teachers attempting to achieve equal time for science and social studies, occasionally schedules omitted social studies altogether (e.g., Jade's classroom at Clairton in Brookeport) for reasons we could not discern. Other schedules weighted science more heavily than social studies (e.g., Teagan at Riverview School in Jasper, as shown in Table 5).

Tori from Lakeview School in Norhaven emphasized that in her district, the availability of the science kits her district provided had a strong influence on when she taught science. She told of the start of the school year when the kits weren't yet available:

There have been snags, like we couldn't start science until mid-September because all the supplies were backordered. The kits weren't in, and we didn't have access online to our own accounts for

several weeks. [So] we've hit some hiccups. Normally, like in my class, we would do a week of social studies, a week of science, a week of social studies. What we did was we did social studies until everything got in, and then we did science. It was almost like the first nine weeks was a little bit of science but a lot of social studies. The second nine weeks has been a lot of science and trying to catch up and then some of the social studies.

These examples illustrate the variability in *how* teachers swap science and social studies – but also that they take as a given that this swap is likely to occur.

Another factor that we anticipated would shape the consistency of science instruction was how intervention time was scheduled. Eleven (of 17) schedules designated a distinct intervention time. This suggests that students in these settings are less likely to be pulled from science instruction for interventions. These interventions were referred to in various ways. For example, at Bartlett and North Valley, teachers referred to WIN time – standing for What I Need, and being time for intervention for reading, writing, language, speech intervention, social work, or other IEP goals – and emphasized that it was sacrosanct. In Bartlett, Kent and Jacqueline both emphasized that there could be no new material introduced during WIN time – which Jacqueline emphasized means that the students who were pulled out for intervention were still “exposed to all the science.”

Jordie's schedule at Rivercrest School in the Eastfort area provides an interesting contrast. On this schedule, “Title VII Support” was included for 20 minutes during the ELA block, four days per week. This would imply at least some dedicated intervention time. Yet Jordie noted:

I have a lot of students getting reading intervention, speech intervention, social work, X, Y, Z, a lot of students getting a lot of extra therapies and interventions. When they are picking when they're going to pull kids out, they don't want to pull them out during reading or math. They don't want them to miss PE, art, *et cetera*, understandable, and so they get pulled during science, which is a bummer. I understand, but there is sometimes sort of a cavalier attitude of, like, “Oh. It's fine. They can miss science.” I'm like some of these kids, science is the only time of day that we're doing something that they can do.

At Rivercrest—and undoubtedly in some other schools—children did miss science for interventional work.

Findings were similar for how specials were scheduled. In 14 schedules, specials are noted, and among these 14, all but one (Carlotta Walls) specified specific times for the specials. This suggests that in most of the settings, students would not miss science for specials. For Carlotta Walls, specials are listed but not calendared, suggesting that at least some of the time, students might have a special in lieu of science. In addition, in the schoolwide schedule for Willow Park School in Norhaven, the science blocks across grades are shared with social studies, art, and, in one grade, computer. This suggests that at this school, students definitely go to a special (art or computer) rather than science, some of the time (*in addition* to rotating with social studies). Moreover, Jade, at Clairton School in Brookeport, described science as a special, saying, “We have science on Thursdays, that's a specialty block, so that's that 50-minute block there.” In contrast, Sheryl from Vernon School in North Valley emphasized that children went to specials at the end of the school day, describing her day as such:

This year, we're really starting some phonics instruction because we felt like our kids have been lacking in that area. Then we have reading, snack and recess, writing, lunch and recess, read aloud, math, science, and then our students go to specials at the end of the day.

In addition to the relationship on the schedule with social studies, intervention time, and specials, as we examined the schedules, we recognized another dimension that may matter for consistency: how science was positioned, chronologically, in the school day. If science is positioned toward the end of the school day, it is more likely to get skipped when the class falls behind the schedule for other subjects during the day. Jacqueline, a first-grade teacher at New Rockford School in Bartlett, noted that science might be positioned late in the day in the early grades:

I think that's done purposely now because of reading and writing being such a priority in first grade. They know children's attention spans and their learning ability's a little easier in the beginning of the day, their focus and their energy level, so they put it at the beginning of the day.

In only one of the calendars was science scheduled for the last block of the day across most grade levels (Willow Park in Norhaven). In all the other schools, science positioning varied across the day.

In sum, as many elementary educators in the US would expect, in these schools, science is often scheduled in conjunction with social studies, meaning science's consistency is dependent on how the school operationalizes that co-scheduling, but suggesting, at the least, that science may not be routinely or predictably taught throughout the school year (as is certainly the case for ELA and mathematics). In these schools that are reputed to take science seriously, though, science instruction does *not* appear to be a time when children are generally pulled for interventions or specials, and the positioning of the science blocks generally occurs throughout the school day, suggesting that science would not necessarily be the subject likely to be eliminated if they fall behind schedule. Thus, while some factors argue against consistency, others suggest that in these schools, some measures seem to be in place to provide at least some consistency.

Summary of Findings

Table 7 summarizes the overall findings.

Table 7: Summary of findings

<i>Area of focus</i>	<i>Key findings</i>
Comprehensiveness	• Wide coverage of science across grades 1-5 (and generally also in K) • About 2-4x more instructional time for ELA • About 2x more instructional time for math •
Frequency	• The science block is usually shared, indicating science is not likely to be taught on a daily basis • "Science" block is typically 45 minutes (for an average of about 20 minutes/day, given the shared block), but is fairly variable across schedules • Less time in lower grades than in upper grades •
Consistency	• Typically swapped with social studies • Most schedules show a designated time for interventions • Most schedules show a designated time for specials • Science occurs throughout the day (not only at the end of the day)

The Case of New Rockford in Bartlett

We briefly provide New Rockford School, in Bartlett, as a case for consideration. We selected this schedule as a focal case because it is both fairly straightforward, and it illustrates how a school can achieve fairly high levels of comprehensiveness, frequency, and consistency of science, without

necessarily being an ideal case. Figure 1 shows the schoolwide schedule we received for the 2021-22 school year. The schedule shows several things clearly:

- There is not a science block during kindergarten. (There is a “Discovery” block that might include science, though it is not colored the same color as the science blocks in other grades.)
- Science and social studies share a block in grades 1-5. (Purple blocks)
- The science block is 45 minutes in each grade.
- ELA (the dark green blocks) is scheduled for 90 minutes for each grade level.
- Math (the pink blocks) is scheduled for 60-70 minutes for each grade level.
- There is a dedicated time in each grade for specials. (Yellow blocks)
- There is a dedicated time in each grade for intervention or extension time. (Red blocks)
- For first and second grade, science is scheduled in the afternoon. For grades 3, 4, and 5, science is scheduled in the morning.

Figure 1: Schoolwide schedule from New Rockford in Bartlett

Time	Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
8:20	8:20 - 8:35 Arrival	8:20 - 8:35 Arrival	8:20 - 8:35 Arrival	8:20 - 8:35 Arrival	8:20 - 8:35 Arrival	8:20 - 8:35 Arrival
8:35	8:35 - 9:00 MM/SEL	8:35 - 9:00 MM/SEL	8:35 - 9:00 MM/SEL	8:35 - 9:00 MM/SEL	8:35 - 9:00 MM/SEL	8:35 - 9:00 MM/SEL
9:00	9:00-9:30	9:00-10:30 ELA	9:00-9:45 Specials	9:00-9:45 SS/SC	9:00-10:05 Math	9:00-10:30 ELA
9:15	Foundations					
9:30						
9:45	9:30-9:55 Recess		9:45 - 10:15 Ext/Int	9:50-10:35 Specials		
10:00	9:55-10:55 ELA		Grade Level Mtg -		10:05-10:50 SS/SC	
10:15			10:15-11:45 ELA			
10:30		10:30 - 11:00 Ext/Int		10:35-12:05 ELA		10:30-11:15 SS/SC
10:45		Grade Level Mtg -			10:50-11:35 Specials	
11:00	11:00-11:25 Lunch	11:00-12:10 Math				
11:15						11:15-11:40 Recess
11:30	11:30-12:00 Ext/Int				11:35-12:00 Recess	
11:45	Grade Level Mtg -		11:45-12:10 Recess			11:40-12:05 Lunch
12:00	12:00-1:00 Math			12:05-12:30 Recess	12:00-12:25 Lunch	
12:15		12:10-12:35 Recess	12:10 - 12:35 Lunch			12:10-12:40 Ext/Int
12:30				12:30-12:55 Lunch	12:30-2:00 ELA	Grade Level Mtg -
12:45		12:35-1:00 Lunch	12:35-1:45 Math			12:40-1:25 Specials
1:00	1:00-1:15 Recess			1:00-1:30 Ext/Int		
1:15	1:15-2:00 Specials	1:00-1:45 SS/SC		Grade Level Mtg -		
1:30				1:30-2:30 Math		1:25-2:30 Math
1:45						
2:00	2:00-2:30 Discovery	1:45-2:30 Specials	1:45-2:30 SS/SC		2:00-2:30 Ext/Int	
2:15					Grade Level Mtg - Thursday	
2:30						
2:40	2:30 - 2:40 Pack/Dis	2:30 - 2:40 Pack/Dis	2:30-2:40 Pack/Dis	2:30-2:40 Pack/Dis	2:30 - 2:40 Pack/Dis	2:30 - 2:40 Pack/Dis

We interviewed teachers Tessa and Jacqueline and principal Marinda from New Rockford School, as well as Kent, the principal at another Bartlett school, Crossroads School. Recall that three of these Bartlett participants emphasized how important it was to have science time protected. In fact, Kent said:

The thing I constantly tell districts when they're coming in here, or when we've been to conferences, is that that master schedule was so key. Some of the non-negotiables where it set the foundation for everything we do. It set the foundation for great ELA instruction, for great science instruction, for great math instruction. It's really critical.

Bartlett's time for interventions was named as an important aspect of their schedules, as discussed above. Tessa, a third grade teacher, acknowledged that she did know of an instance where a child was pulled for language services during science, in another teacher's class, but she emphasized that that was the exception:

That is very rare. I can say quite confidently, even first grade and previous years, despite COVID, before COVID, science time is science time.

Jacqueline, a first grade teacher, discussed how she made this emphasis on science work, and in particular, how she thought about connections between science and ELA:

I have to say, especially this year with the pandemic, it's reading and writing is the priority, but we never lost sight of science and always kept science and social studies too. Math would be the next priority in first grade. It's a little switched up in the older grades. Science fits perfectly in there because we put a lot of writing and reading into science as well. ... We [presumably referring to the first-grade teachers] usually take a science unit and use that to help us instruct our ELA. For example, we're doing a plant[s] unit now. We have very specific plants lessons in the afternoon at science time. Yet, for ELA, I'm reading books on plant[s], and we're writing both fiction and non-fiction on plants. We try to make everything fit together...

For these educators, the teaching of science is seen as non-negotiable; it is a district priority. The teachers may integrate science with other subject areas, like ELA, but the schedule ensures that science is taught.

Marinda, the principal at New Rockford, also brought up another factor in what gets science taught in the district: the strong presence of a district-run science center. (Other Bartlett participants also referenced the importance of the science center.) Marinda said, when asked whether teachers in her school were really “bought in” to the regular teaching of science:

Everybody has bought in. Everybody has a dedicated science block. Everybody has been trained. Everybody teaches science. It's not an option. Really, [there are only] varying degrees as to which ones take more advantage of having ... the science center come over and do it. Which ones are doing it on their own? It is a shared block, technically, with science and social studies. Which ones are focusing on science versus social studies? I will easily answer 90 percent are more focused on science. Why is that? Because we have a dedicated science center to support it. If you're teaching social studies, nobody's coming over to teach your social studies block. That's not to say that our teachers aren't teaching science. They have such a great support system that that's what they've got in the habit of using. That's a great thing. Ninety percent of our teachers are doing science versus social studies. Fifty percent plus are taking advantage of the science center on a regular basis.

Marinda acknowledged the strong support of the science center—even acknowledging how that support can lead to the prioritizing teaching science to the detriment of teaching social studies. (As part of our larger data collection, we determined that Bartlett employed two full-time elementary science coordinators who worked in and helped run the science center, and a single half-time social studies coordinator—thus district structures reinforced this disparity in Bartlett.) At the same time, elsewhere in the interview, Marinda expressed concern about whether teachers were *over*-relying on the science center, asking the science center staff to come teach a science lesson and not necessarily developing their own science teaching expertise through the experience.

While that concern seems legitimate, it nonetheless seems clear from both the schedules and the interviews that students at New Rockford school do get science instruction – and this analysis suggests that it is taught relatively comprehensively, frequently, and consistently.

Discussion and Implications

Conclusion 3 of the *Brilliance and Strengths* report (NASEM, 2022) names a key gap in the literature on elementary science, stating, in part, “The evidence is not clear about the most effective ways to structure the frequency and duration of science (or engineering) instructional time in preschool through elementary grades” (p. 238). While this study cannot fully address this gap in the literature, it does

provide some guidance for how school schedules could be crafted to make science comprehensive, frequent, and/or consistent, as well as some pitfalls that could be avoided in schedules.

At the outset, it is important to acknowledge a reality: This study provides additional support for the national survey data that shows that science is not generally taught very much. That said, making the time for science at the elementary level is a dilemma to be managed by educational leaders and classroom teachers (Seeber et al., under review), not a problem with a relatively simple technical solution. Individuals and systems have competing values related to prioritizing different subject areas, and there is not, and cannot be, an easy solution to navigating those competing demands. This analysis of schoolwide and classroom schedules helps to provide us with some insight into how principals, teachers, and other educators are managing this dilemma. We identified several strategies that they used—from developing a non-negotiable school- or district-wide schedule, to swapping science and social studies, to departmentalizing or having science specialists. These are summarized in Table 8. Based on these findings, we identify a few implications for the design of elementary school and classroom schedules.

Table 8: Strategies Educators Used for Making Science Comprehensive, Frequent, and/or Consistent

<i>Strategies for Scheduling Science</i>
• Including science on the schedule, K-5 • Valuing and leveraging children’s love for science • Swapping science and social studies • Infusing science into ELA and maintaining science time, rather than usurping science time by ELA • Dedicating time for interventions and specials • Using a science specialist or departmentalization • Supporting science through systemic supports (e.g., science center)

Few schools in our sample had dedicated time exclusively for science, but even in places where science was swapped with social studies, some teachers or leaders seemed to employ strategies to ensure that science was taught. Recall Teagan, at Riverview School in Jasper: Teagan’s weekly schedule showed one consistent block for science and social studies, but she organized this to teach science Monday through Thursday and social studies on Fridays. While this does not bode well for children’s social studies education, it does provide one way of managing the dilemma of prioritizing science time. More common was a perspective of teaching science for a week and then social studies the next week, or science some days and social studies other days during the week, or a science unit followed by a social studies unit. Most of the educators in our sample seemed to work to balance the time for science and social studies to be roughly equal. Essentially consistent with recent survey data in science (Banilower et al., 2018; NASEM, 2022), slightly older data in social studies education suggests that the instructional time for social studies has declined over time (Heafner & Fitchett, 2012), that instructional time for social studies tends to increase when social studies is tested throughout the K-12 grade span (Fitchett, Heafner, & Lambert, 2014a), and that there’s substantial variability in the reported daily or weekly instructional time for social studies (Fitchett, Heafner, & Lambert, 2014b); this body of work also indicates that the instructional time reported by teachers or principals for science and social studies tends to be essentially equivalent (and much less than the time for ELA and math) (Heafner & Fitchett, 2015). Thus, while in our “best case” school sample, students seemed, sometimes, to get more time for science than for social studies, generally, it seems that the two subject areas are roughly similar in their marginalization compared to ELA and math.

Most schools in our sample included science on the schedule in every grade from kindergarten (or even pre-kindergarten, in schools that included pre-K) through fifth grade. (A notable exception was King Park, where science is only taught in grades 3-5, district-wide.) Young children deserve the chance to

engage in rich, meaningful opportunities to make sense of the natural world (NASEM, 2022). The *Framework for K-12 Science Education* (NRC, 2012) emphasizes that providing children from kindergarten on with experiences that allow them to develop their ideas through engagement in science and engineering practices is crucial for helping them to develop more robust and flexible understanding. Larimore (2020) builds on that work with early childhood scholarship to make concrete recommendations for pre-K science education. Furthermore, children *can* do this work. The Brilliance and Strengths report (NASEM, 2022) notes:

By kindergarten, children can plan comparisons to test competing hypotheses (Sandoval et al., 2014); identify sources of uncertainty in data and propose reasonable improvements to data collection and instrumentation (Kanari and Millar, 2004; Metz, 2004, 2011). (p. 86)

In sum, young children can engage in meaningful science and enjoy doing so. Building the time into the day for them to learn science helps set the foundation for their future learning and helps to establish early science identities as people who do science (e.g., Carlone, Scott, & Lowder, 2014).

Many of the educators we interviewed acknowledged that ELA was their highest priority; however, most schools in our sample did not seem to lean on the idea of simply reading about science and calling that “science.” While we did see reference to integration (e.g., Crossroads School’s “written expression” time, Jacqueline’s comment about reading nonfiction texts about plants during ELA time, and Dana’s comment about writing about science during writing time), generally, it seemed in these schools that, as Tessa put it, “science time is science time”. While we do not yet have observational data in these classrooms – we are embarking on such observations in the coming months, as a part of our larger project – our findings suggest that these schools, at least, are not managing the dilemma of prioritizing science by usurping science time for ELA (which could be appealing given elementary teachers’ comfort teaching ELA as compared to science; Banilower et al., 2018); instead, what we saw more of was increasing the de facto time for science by infusing science into ELA time while maintaining the integrity of the science itself (e.g., through investigation) during science time. This is more in alignment with the sort of integration that literacy scholars such as Duke (2016) have argued to be beneficial to student learning.

One finding of our analyses pointed to the importance of having dedicated time for interventions. With the exception of Jordie, who indicated that despite such time on her schedule, children were still pulled from science time for intervention work, most of the educators in settings where there was time designated on the schedule for interventions seemed to believe that—for the most part—children were not pulled from science. Teachers seemed to agree with Jordie’s assessment that science was an important part of the day when children could experience success that they might not experience in other subject areas, or with Tori and Sheryl’s comments that children really enjoy getting to learn science. Several studies show, for example, how science can be a space for robust meaning-making and identity development among emergent multilingual children (e.g., Lee & Stephens, 2020; Suárez, 2020; Varelas et al., 2010, 2014). (While some of the participants in our sample seemed to recognize science as a space in which children with learning differences can experience academic success, we did not find recent studies related to science instruction for children with learning differences, suggesting this as an area for future research.) Our findings were similar for specials: generally, the schools in our sample had dedicated time set aside for specials. Some extracurricular activities (e.g., band or orchestra) might interfere with science time, though we had limited data on this point; further research might explore these effects.

Several schools in our sample relied on either a science specialist or some form of departmentalization to manage the dilemma of prioritizing the teaching of science while acknowledging the other demands on teachers’ time. Liam, Hope, and Kyler, for example, all had versions of teaching science (and other subjects – math for Liam, ELA for Hope, and social studies for Kyler) to multiple classes within their grade. Practically, such departmentalization seems to serve two functions. First, it

reduces the number of “preps” a given teacher needs to manage and may (relatedly) increase the teacher’s expertise and preparedness for science teaching. And second, because the switch to another teacher or another classroom would have to happen in conjunction with movement of a second teacher or group of students, the time becomes protected for science – it has to happen. Brilliance and Strengths (NASEM, 2022) comments that this approach:

does not require hiring additional staff, as teachers at a grade level (or sometimes multiple grades) divide up responsibility for specific subject areas, with one or more assigned as the science teacher(s). Then, children rotate through teachers’ classrooms during the day. Although this model helps to ensure there is time allocated for science (and engineering) instruction, it does not necessarily support integration across content areas or foster shared responsibility for the teaching of science and/or engineering (p. 224).

This approach also necessarily impacts the classroom culture and community that a self-contained teacher can grow across time, a hallmark of elementary education. While there are downsides to such departmentalization, it does serve as another way of managing the dilemma to make science both more frequent and more consistent.

Conclusion

Schools’ schedules are one way that school systems operationalize, formalize, and standardize opportunities to learn for students (Hibbeln, 2020). These schedules are critical for enacting reform efforts (e.g., like those embodied in the *Framework* and the NGSS in the United States). Yet as a field, we know little about these schedules and how they are enacted “on the ground” in schools and classrooms. Thus, this study provides one way of “reflecting on reform” as emphasized in this year’s NARST conference theme.

Science education is a civil right for students (Tate, 2001); children deserve to experience the wonder and joy of science (NASEM, 2022). Yet as this study shows, even in best case scenario schools, children may receive far less science instruction than instruction in ELA or mathematics. Large-scale surveys show that these effects may be exacerbated in schools serving predominantly children of color (Banilower et al., 2018). Opportunities and access to science are critical in working toward equity in elementary science (NASEM, 2022). Emergent multilingual learners, for example, can and should be included in science instruction (Lee & Stephens, 2020; Suárez, 2020); so, too, should children with learning differences and/or disabilities (NASEM, 2022; Scruggs & Mastropieri, 1994). Thus, comprehensive, frequent, and consistent scheduling in elementary science is an important route in working toward equity.

It is crucial to remember, though, that instructional time for science is only the first step. We must consider the character of the science to which we are providing them access (Philip & Azevedo, 2017). Does it invite them and their personal, cultural, and linguistic resources in, or does it exclude them? To truly support every child in being able to experience the wonder of science in a way that is epistemologically resonant with them, educators must ensure that children can engage in science within a caring community, orient to investigation in meaningful contexts, refine their explanations through sensemaking with data, learn with and from each other, and be assessed in ways that show their learning and inform instruction (NASEM, 2022). None of these characteristics is possible, though, without science appearing in a comprehensive, frequent, and consistent manner during the elementary day and across the school year.

In sum, in this paper we have provided “images of the possible” that give glimpses into how schools that take science seriously can craft daily schedules that make science comprehensive, frequent, and/or consistent – and thus make science more of a priority at the elementary grades.

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Appendix: Examples of Schoolwide and Classroom Schedules or Excerpts

Arrival Duty starts 7:55	7:55-8:10	8:10-8:35	8:35-9:05	9:05-9:35	9:35-10:05	10:05-10:35	10:35-11:25	11:25-12:35		12:35-1:20	1:20-2:05	2:05-2:15
K	Attendance	Attendance (10 min) Morning Meeting/ Responsive Classroom (15 min)	ELA	ELA	WIN (30 min)	ELA (90 min)	Lunch 10:35-11:00 & Recess 11:00-11:25	Math (60min) Math		Art, Music or P.E. (45min)	Science, Social Studies, Written Expression	Executive Functioning: Organization and Dismissal
1	Attendance	Responsive Classroom (15 min)	ELA	ELA	ELA (90 min)	WIN (30 min)	10:35-11:00 & Recess 11:00-11:25	Math (60min)	Art, Music or P.E. (45min)	Math	Written Expression (35min)	Executive Functioning: Organization and Dismissal
2	Attendance	Attendance (10 min) Morning Meeting/ Responsive Classroom (15 min)	Math	Math (60min)	ELA	ELA	ELA (90 min)	Lunch 11:10-11:35 & Recess 11:35-12:00	WIN (30 min)	Social Studies or Science Written Expression (55 min)	Art, Music or P.E. (45min)	Executive Functioning: Organization and Dismissal
3	Attendance	Attendance (10 min) Morning Meeting/ Responsive Classroom (15 min)	Social Studies or Science Written Expression (45 min)	Social Studies or Science Written Expression (45 min)	Art, Music or P.E. (45min)	Math	Math (60min)	Lunch 11:10-11:35 & Recess 11:35-12:00	ELA	ELA (90 min)	WIN (30 min)	Executive Functioning: Organization and Dismissal
4	Attendance	Attendance (10 min) Morning Meeting/ Responsive Classroom (15 min)	WIN (30 min)	Math	Math (60 min)	Art, Music or P.E. (45min)	Social Studies or Science Written Expression (50 min)	Lunch 11:40-12:05 & Recess 12:05-12:30	ELA	ELA	ELA (90 min)	Executive Functioning: Organization and Dismissal
5	Attendance	Attendance (10 min) Morning Meeting/ Responsive Classroom (10 min)	Art, Music or P.E. (45min)	Social Studies or Science Written Expression (50 min)	ELA (Written Expression)	ELA	ELA (100 min)	Lunch 11:40-12:05 & Recess 12:05-12:30	WIN (30 min)	Math	Math (60min)	Executive Functioning: Organization and Dismissal

Crossroads School, Bartlett: Schoolwide schedule

MON	TUE	WED	THUR	FRI
8.20-8.48: Prep	8.20-8.48: Prep	8.20-8.50: Prep	8.20-8.48: Prep	8.20-8.48: Prep
8.48-9.55: 5th grade	8.48-9.55: 5th grade	8.50-9.40: 3rd	8.40-9.55: 4th	8.48-9.55: 5th grade
9.55-10.10: recess	9.55-10.10: recess	9.40-9.55: Yard duty	9.55-10.45: 1st	9.55-10.10: recess
10.10-11.7: 4th grade	10.10-11.7: 4th grade	9.55-10.10: recess	10.45-12.03: Recess, lunch, prep	10.10-11.7: 4th grade
11.17-12.03: lunch, prep	11.17-12.03: lunch, prep	10.10-11.17: 5th	12.03-12.53: 1st	11.17-12.03: lunch, prep
12.03-12.53: 1st, SDC	12.03-12.53: 1st, SDC	11.17-12.15: lunch, prep	12.53-1.23: SDC	12.03-12.53: 1st
12.53-1.43: 3rd	12.53-1.43: 3rd	12.15-1.05: 1st	1.23-2.50: prep	12.53-1.43: 3rd
1.43-2.50: 5th	1.43-2.50: 5th	Early release day		1.43-2.50: Prep

Gartness School, Fairby: Science specialist schedule

Ms. [REDACTED] First Grade Schedule 2022-2023

	Monday	Tuesday	Wednesday	Thursday	Friday
9:15-9:35	Arrival/Breakfast	Arrival/Breakfast	Arrival/Breakfast	Arrival/Breakfast	Arrival/Breakfast
9:35-10:13	Lexia/Intervention (9:35-9:55) Morning Meeting (9:55-10:13)	Lexia/Intervention (9:35-9:55) Morning Meeting (9:55-10:13)	Lexia/Intervention (9:35-9:55) Morning Meeting (9:55-10:13)	 PE	Lexia/Intervention (9:35-9:55) Morning Meeting (9:55-10:13)
10:15-11:03	 ART	 Library	 Library	Morning Meeting (10:15-10:30) Foundations (10:30-11:00)	 PE
11:05-11:53	Foundations (11:05-11:35) *SNACK* Vocabulary (11:35-11:45)	Foundations *SNACK* Vocabulary Science 2x Month w/ Mr. [REDACTED] (11:05-11:45)	Foundations (11:05-11:35) *SNACK* Vocabulary (11:35-11:45)	*SNACK* Vocabulary/Text Talk (11:00-11:35) Stations/WIN (11:35-12:15)	Foundations (11:05-11:35) *SNACK* Vocabulary/Text Talk (11:35-12:15)
11:55-12:43	Text Talk (11:45-12:10) Stations/WIN (12:10-12:50)	Text Talk (11:45-12:10) Stations/WIN (12:10-12:50)	Text Talk (11:45-12:10) Stations/WIN (12:10-12:50)	Math 12:15-1:00	Stations/WIN (12:15-12:55)
12:45-1:33	Writing (12:50-1:30)	Writing (12:50-1:30)	Writing (12:50-1:30)	Music (1:00-1:30)	Writing (12:50-1:30)
1:35-2:23	LUNCH/RECESS	LUNCH/RECESS	LUNCH/RECESS	LUNCH/RECESS	LUNCH/RECESS
2:25-3:13	MATH (2:25-3:25)	MATH (2:25-3:25)	MATH (2:25-3:25)	Science 	MATH (2:25-3:25)
3:13-4:03	STUDIOS	STUDIOS	STUDIOS	STUDIOS/STEAM	STUDIOS *Success Store
4:03-4:10	End of Day Share	End of Day Share	End of Day Share	End of Day Share	End of Day Share

Clairton School, Brookeport: Jade's first-grade schedule

	PK	K	K	1	1	2	2	3	3	4	4	5	5
7:25-7:50				Breakfast, Moment of Silence, Pledge and Announcements									
7:50-7:55		W-MM/ Table tops	Meeting/Calendar	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20	MM/SS 7:50-8:20
7:55-8:15		Milligan music	7:50-8:20	Everyday Math	Everyday Math	Everyday Math	Everyday Math	Everyday Math	Everyday Math	Everyday Math	Everyday Math	Everyday Math	Everyday Math
8:15-8:30		Wheeler music	Literacy/Read Aloud	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9	Whole group 8:20-9
8:30-8:45			Journals 8:45-9:15	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
8:45-9:00		M-MM/ Table tops	Recess	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
9:00-9:15				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
9:15-9:30				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
9:30-9:45				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
9:45-10:00				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
10:00-10:15				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
10:15-10:30	DD and Autism services vary determined by IEP and grade level placement			Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
10:30-10:45				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
10:45-11:00				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
11:00-11:15				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
11:15-11:30				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
11:30-11:45				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
11:45-12:00				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
12:00-12:15				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
12:15-12:30				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
12:30-12:45				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
12:45-1:00				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
1:00-1:15				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
1:15-1:30				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
1:30-1:45				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
1:45-2:00				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
2:00-2:15				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
2:15-2:30				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45
2:30-2:50				Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45	Math Stations 9-9:45

Lakeview School, Norhaven: Schoolwide schedule

Second Grade 2022-2023

9:00 - 9:20	Attendance/Morning Work
9:20-9:30	Check Morning Work
9:30-9:45	Phonics
9:45 - 10:20	Reading
10:20 -10:40	Recess
10:45-11:30	WIN time
11:30-12:10	Writing
12:15 - 12:55	Lunch/Recess
1:00 - 1:15	Read Aloud
1:15-2:10	Math
2:10-2:35	Science/SS
2:40-3:35	Specials
3:40	Pack up
3:52	Dismissal

Vernon School, North Valley: Sheryl's second-grade schedule