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| **Synopsis of high-quality task:**Students will create a weekly school schedule for a 6 ½ hour day and 32 ½ hour week. The schedule needs to fit the parameters of specific class times both per day and per week. They need to explain how their schedule meets the parameters and why the school should adopt their schedule. **Anticipated student time spent on task:** Two 52-minute class periods **Student task structure(s):** Partner work or small group work (2-4 students) |
| [**Math Content Standards and Practices:**](http://www.doe.mass.edu/frameworks/math/2017-06.pdf)**5.NF.A.1** Add and Subtract fractions with unlike denominators (including mixed numbers). **5.NF.A.2** Solve word problems involving addition and subtraction of fractions.**5.NF.B.3** Solve word problems involving division of whole numbers leading to answers in the form of fraction or mixed numbers. **5.NF.B.6** Solve real world problems involving multiplication of fractions and mixed numbers. **SMP 1** Make sense of problems and persevere in solving them. **SMP 4** Model with mathematics. **SMP 6** Attend to precision.   |
| **Prior Knowledge:** **4.MD.A.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money. **4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole number answers using the four operations. **4.OA.A.1** Interpret a multiplication equation as a comparison. |
| **Connections to the real-world:**Students navigate a school schedule every day but probably don’t understand why it is the way it is. Creating a schedule is not something a student would typically do, but can relate to dealing with constraints and weighing pros and cons to different options.  |
| **Mastery Goals:**Learning Objective:Students will be able to utilize all operations to create a schedule using fractional time representations. Language Objective:Students will be able to reflect and brainstorm with their group utilizing strategies and terminology.Students will be able to utilize graphic organizers to map out their schedule and create their proposal.  |
| **Teacher instructions:**Task Introduction: Introduce the project with its parameters. Clarify when applicable but allow student choice and interpretation. Groups should be at least pairs or small groups of 3 or 4. Strategies: Use graphic organizers to double check information and show your calculations as well as write your proposal. |
| **Instructional Materials/Resources/Tools:** Include:* Scoring rubric: Focus on including the standards-content and practices for performance criteria. Focus should be less on presentation style, design, etc. unless it is tied directly to an ELA standard.

Handouts and Materials: 1. Student Instructions Page A
2. Schedule Template Page B
3. Checking Graphic Organizer Page C
4. Proposal Organizer Page D
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| **Accessibility and Supports:** **Potential sentence starters:**We can divide each day….5/4 of an hour is [more or less] than 1 whole hour.**Key academic vocabulary**: Improper fraction, common denominator, numerator, denominator, factor, greatest common factor, equivalent |

**Student Instructions: Page A**

You and your group have been selected to redesign the 5th grade schedule. You have a lot of choices and options, but your schedule must follow these rules:

1. Each day but be a full 6 ½ hours.
2. Each day does not have to look the same.
3. You must include Advisory each day for ¾ hour per day.
4. You must include ELA for 5/4 hours each day (or weekly equivalent).
5. You must include Math for 5/4 hours each day (or weekly equivalent).
6. Specials should be the same amount of time each day.
7. Lunch should be the same amount of time each day.
8. Science and Social Studies must have an equal amount of time each week but do not necessarily have to be every day.

After you have your completed schedule, you will submit a proposal to the principal of the school and justify that your schedule meets the listed rules above and is the best choice for the school to switch to.

**Schedule Template: Page B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Day  | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| Start Time: 7:50 AM  |  |  |  |  |  |
|  |  |  |  |  |  |
| End Time: 2:20 PM |  |  |  |  |  |
| Total Hours:6 ½ hours each day |  |  |  |  |  |

Page C - Graphic Organizer

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Do you have 6 ½ hours each day?** **Show the fractional hours you used and their daily total.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| M | T | W | Th | F |
|  |  |  |  |  |

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| Do you have lunch scheduled each day? | Do you have specials scheduled each day? |
| Do you have Advisory scheduled each day? |
| How many hours of math do you have scheduled for one week? | How many hours of ELA do you have scheduled for one week?  |
| How many hours of Science do you have scheduled for one week? | How many hours of Social Studies do you have scheduled for one week? |

Page D - Graphic Organizer for Proposal

Schedule Proposal

|  |  |
| --- | --- |
| What makes your schedule different from the current schedule? | Why are those differences important? |
| How much time did you allot for Science and Social Studies? Why? | How much time did you allot for Special and Lunch? Why? |
| Why should the school adopt your schedule permanently? (Convince your reader) |
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| **Sample Student Work:****Student work, Page A. The student first converted 13/2 to 26/4, then subtracted 5/4 once for ELA, another 5/4 for math, and 3/4 for advisory to get 13/4. They then subtracted 4/4 for science and 4/4 for social studies to get 5/4. Then subtracted 2/4 for lunch to get 3/4. They list the time in fourths of an hour for each class.Student Work, Page B. Everyday from 7:50-8:35, Advisory. From 8:35-9:35, science on Monday, Wednesday, Friday and social studies on Tuesday and Thursday. From 9:35-10:35, social studies on monday, wednesday, friday and science on tuesday and thursday. From 10:35-11:50, Math on Monday, Wednesday, Friday and ELA on Tuesday and Thursday. From 11:50-12:35 Specials everyday. From 12:35-1:05 everyday lunch. From 1:05-2:20 ELA on Monday, Wednesday and Friday; Math on Tuesday and Thursday.Student work, page c. Shows the fractional time of each period planned every day in the previous image. The student answered "yes" for the first 3 questions, 8 hours and 45 minutes for the next 2 questions, 7 hours for the last two.Student work, page d. Question 1: "Not all the classes have the same amount of time." Question 2 (across): Because you have more time to learn and a little less time is specials." Question 3: "1 hour because it was even and left enough time for specials and lunch." question 4: "30 minutes for lunch because specials (40 minutes) should be a little longer than lunch and that was the left over time." Question 5: "The school should use this schedule so that we have more time in the core classes that are needed, less time at specials (which is needed but not as much as English, Math, Science and Social Studies."** |