

**COSMOS Experiment-Best Internet Deal**

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| **Grade 6** | | |
| **Topic:**  Unit Rates  Students will the best deal from internet providers by finding the unit price. | | **Materials:**   * Laptop * 2018-Broadband data (Excel Spread sheet) * Notebook * Calculator |
| **Science & Engineering Practices (SEPs)**  Not applicable | **Disciplinary Core Ideas (DCIs)**  Not Applicable | **Crosscutting Concepts (CCs)**  Not applicable |
| **Math Common Core Standards Across different Grade Levels:**  **6th Grade**   * **[CCSS.MATH.CONTENT.6.RP.A.2](http://www.corestandards.org/Math/Content/6/RP/A/2/)**   **Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship.**  **[CCSS.MATH.CONTENT.6.RP.A.3.B](http://www.corestandards.org/Math/Content/6/RP/A/3/b/)**  **Solve unit rate problems including those involving unit pricing and constant speed.**  **7th Grade**   * **[CCSS.MATH.CONTENT.7.RP.A.2.B](http://www.corestandards.org/Math/Content/7/RP/A/2/b/)**   **Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.**  **8th Grade**   * **[CCSS.MATH.CONTENT.8.EE.B.5](http://www.corestandards.org/Math/Content/8/EE/B/5/)** * **Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.** | | |
| **Essential Question:**  How can you use rate to compare two real-world quantities? | | |
| **Learning Target** | Today I am comparing cost of different internet providers so that I can decide which is the most cost efficient. I know I’ve got it when I can make a claim and support which internet provider is the best. | |
| **Engage** | List 3 things that you expect from a good internet provider. Make sure to explain why these things are important to you. | |
| **Explore** | For this activity students will be investigating the prices of internet service providers across the country.  Using the [2018-Broadband-Website Data](https://docs.google.com/spreadsheets/d/1kvwvr3Uy64A2B4RzENhF0Lb14Kgp-RGX9NIyVdTuVwY/edit?usp=sharing) spreadsheet, students will need to choose a state in which they would like to compare the cost of different internet providers.  Focus on columns A, B, D, F, and H.   * Column A-Provider * Column B- State * Column D- Technology * Column F- Upload Bandwidth Mbps * Column H-Monthly Charge   Using the “Estimate price per month” and “upload rate” (used for friendly number purposes) students need to calculate and compare the unit price for at least 5 internet providers in the state of their choice. | |
| **Explain** | After students have completed their calculations, they will make an advertisement (written ad or commercial) promoting the internet provider service that they believe to give customers the best deal.  Advertisement must include: name, location, monthly cost, and unit price for upload speeds.  **6th Grade:**  “use rate language in the context of a ratio relationship.”  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  For every \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **7th and 8th Grade:**  Make tables, graphs, equations, and verbal descriptions of proportional relationships.  Constant rate of proportionality: k = y/x.  **8th grade:**  Compare two different proportional relationships represented in different ways.  \*\*\* Students must compare 2 different companies and demonstrate their findings in a table, graph and equation. \*\* | |
| **Extend** | Students who complete the given task can work on:   1. finding the unit price for download speeds (usually less than a penny per kbps) 2. calculate the packet loss % rate | |
| **Evaluate** | Students will receive an exit ticket with 4 questions. They must choose 2 to answer.  1)A baker used 4 cups of flour to make 5 batches of brownies. He used \_\_\_\_ of a cup of flour to make 1 batch of brownies.  2) A computer programmer worked for 10 hours and earned $70, which is a rate of $\_\_\_ per hour.  3) A scientist used 2 gallons of liquid for every 3 hours he works. He uses \_\_\_\_ of a gallon each hour he works.  4) A fair owner made 18 dollars when a group of 3 people entered, which is a rate of \_\_\_ dollar per person. | |