

Discussion 1: Case Studies

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Case Study Assignment

This case study focuses on a fourth-grade teacher, Mr. Haddad, who is preparing a unit on matter and energy. The class is composed of 22 students.

Background: Mr. Haddad has presented this unit to fourth-grade students in past years, but this year he would like to take advantage of the school's available technology. He plans to have students work in pairs, each of which will build a simple outdoor solar greenhouse. Students are to use thermometers to collect temperature data, analyze the data using spreadsheets, prepare a report, and present that report to the class. The teacher's goal is to increase students' awareness of interactions between matter and energy and to introduce them to methods of observation, recording, analysis, and communication in science. Mr. Haddad and the students are familiar with the graphing functions of the spreadsheet software, but many of the students have not used a spreadsheet for data analysis.

Task: Mr. Haddad has asked the Master Technology Teacher (MTT) for assistance in incorporating the graphing and data analysis functions of the spreadsheet program in the solar greenhouse activity and for any other ideas the MTT may have to strengthen the unit.

Explain why the use of spreadsheet software proposed by the teacher would be appropriate and effective for enhancing this activity

Mr. Haddad wants to introduce his students to methods of observation, recording, analysis and communication in science. Spreadsheet software will provide Mr. Haddad and his students with the tools that they need to organize and retrieve their data and print the results. Spreadsheet software such as Microsoft Excel is designed to facilitate the organization, analysis and graphing of data. Each project is referred to as a workbook and can be composed of several spreadsheets. In this way all the spreadsheets created for a single project can be kept together in the workbook. The spreadsheet is organized (laid out) with letters across the top of the page that represent the columns and numbers down the left hand side of the screen that represent the rows. Using the columns and row the students can easily edit, format and organize their data. Text and information in the spreadsheet can be formatted to change the font style or color. Students of various skill levels can use the spreadsheet software and be

successful. Students who may need help with using a spreadsheet can find help available simply by clicking on Help in the menu bar located at the top of the screen. The help menu allows the user to search for help on the various spreadsheet functions. The students can use the spreadsheet software to perform automatic calculations using formulas and functions that can be inserted into their spreadsheet. Spreadsheet software can perform simple calculations such as finding sums and averages easily and accurately. In this way Mr. Haddad's students can collect their temperature data and organize it in meaningful ways. Students can calculate averages, plot averages over time and analyze the data for average daily temperature (minimum, maximum). Mr. Haddad's students can then use the data in the spreadsheet to create graphs to show the data in a graphic format. The graphical representation of data is very good for students in Mr. Haddad's class who might be visual learners. Students can create a graph and embed the graph in a report or slide show presentation. Mr. Haddad can meet the needs of his diverse student population through the incorporation of technology to enhance the lesson on matter and energy.

[Describe one additional technology available to the teacher and how that technology can be effectively integrated into the lesson.](#)

One additional technology that I might suggest to Mr. Haddad as the MTT on campus is the use of some type of presentation software such as Microsoft PowerPoint. Slideshow presentation software such as Microsoft PowerPoint allows the user to create a multimedia presentation that will effectively communicate the information and entertain the audience. A PowerPoint is made up of individual slides containing small bits of information that are to be presented to the audience. Through the use of transitions and animations information can be demonstrated much more effectively than with a static picture. Font, style and color can be changed on each slide to focus attention on certain points. Several backgrounds and templates are available to help the novice user create a slideshow report that looks professional. By allowing students to create slide show presentations for their reports, Mr. Haddad will be facilitating more of a student centered approach to learning where students have more control and ownership of their learning. The graphs or charts created in the spreadsheet software can easily be copied and placed on a slide in the presentation and thus the use of presentation software can be effectively integrated into the lesson.

[Explain why this technology would be appropriate and effective for enhancing this activity.](#)

Since one of the goals that Mr. Haddad indicated for his lesson was the presentation of a report to the class, the use of PowerPoint for that report further enhances the lesson. Students can create a multimedia report using PowerPoint presentation software that will meet the needs of the diverse learners in the classroom. Students that are visual learners will be able to view the report as it

is given, auditory learners will be able to hear the report and any added sounds, and kinesthetic learners will also be addressed through the creation of the PowerPoint itself. A report made with presentation software will keep the students engaged in the report and thus they will learn the material presented. Students can use a digital camera to add photos of their greenhouse or thermometers to their slideshow presentation. Students can also add graphics, animations, video and sounds to enhance their slideshow presentation.

Describe how to support and guide the teacher in planning, implementing, and evaluating the applications of technology.

As the MTT on campus I am there to support and guide Mr. Haddad in planning, implementing and evaluating the applications of technology. I would arrange to meet with Mr. Haddad and discuss his plans for the lesson. Through the use of cognitive coaching techniques such as thought provoking questions about the lesson, student outcomes, and evaluation I would work with Mr. Haddad to develop his lesson to meet his expected student outcomes. As a mentor or coach for Mr. Haddad I am not there to tell him what to do, but to provide support and guidance that he might need to develop a lesson that uses technology to enhance instruction. I would mentor or coach Mr. Haddad and ask him questions about the classroom management techniques that he plans to use while using technology with his students. I would also ask him about his diverse student population and the possible assistive technology needed for any special needs students. Mr. Haddad mentioned the need for his students to learn how to use data analysis with spreadsheets. If requested by Mr. Haddad I could supply him with instructional materials or if requested teach a lesson on data analysis for his class prior to the lesson.

Describe how the technology you selected might be adapted for use in one other learning environment (e.g., a different subject area, lesson, population, grade level).

Slideshow presentation software can be used across all subject areas to enhance instruction. In Language Arts, the students could create a slide show about a favorite author. The students could research information on their author such as their place of birth, schooling, favorite pet, etc... The information about their author could then be placed on individual slides to create a presentation. Students could include information or short book reviews about several of the books that the author has written and incorporate that into their slideshow presentation. A collection of student created poetry combined with appropriate graphics could be used as a presentation to the class. Students could storyboard their favorite story, describing the plot, what happened at the beginning, middle and end, and character traits. It can be printed like a storyboard or comic book. Slideshow presentation software allows the user to create a multimedia presentation that will effectively communicate the information and entertain the audience.