

## **Unit overview**

### **Overview of the Technology Integration Unit (Brief Description)**

This unit is based upon the need to teach young learners the importance of having a budget in today's society with the use of online recourses and excel computer program. Students will have to recall previous knowledge about mathematical operations and apply them to a financial mindset. This unit will not only help prepare students to tackle tough money problems in the real world, but also further their knowledge about basic computer skills and specific use of the Excel program.

### **Class Setting**

The classroom will be set up in table groups having six tables with five students at each table. Each table will have a monitor on it that is hooked up to a VGA splitter that is connected to the teacher's laptop. The classroom will also have a set of five classroom computers and one networked printer for students to use in the back of the classroom

### **Grade Level**

This unit could be tailored to any grade, but I will be focusing on sixth grade because I am planning on returning to a middle school level placement.

### **Time allotment**

This will be a weeklong unit with each class being 60 minutes. I am prepared to extend the unit for another week in case more background review is needed or a specific lesson takes longer than expected.

### **Curriculum Area**

The main focus of this unit will be in personal finance, accessing mathematical ideas and processes to further students understanding of personal budgets and using the Excel program. Because writing is important in any subject, students will also be applying language arts skills to complete several writing assignments.

### **Learning Objectives**

Each lesson will contain specific learning objectives that relate to the topics being covered. They will be focused on the abilities they will be able to complete after each specific lesson.

### **Standards**

This unit will cover standards in technology, mathematics, economics, and language arts. Each lesson will contain specific standards pertaining to topics being covered.

## **Resources**

### *Hardware*

- Computer lab with a computer for every student
- VGA splitter
- Six monitors (one on each group table)

### *Software*

- Microsoft Word
- Microsoft Excel

### *Relevant Material*

- Internet access
- Pencils
- Class binder
- Graphic organizers
- Class handouts

## **Activities**

See specific lesson plans for activities.

## **Assessment**

See specific lesson plans for assessments.

## **Interdisciplinary Connections**

1. How can you use the writing assignments in this unit to further your understanding of Language Art requirements you are currently learning?
2. How has the failing economy in recent history given the need of properly budget our money today?

## **Theory to Practice Connection**

This unit will focus on a project based learning theory, having every lesson taught working towards a final project that students will develop. The lessons will contain many of the theories that have been discussed in class. Most of the lessons will be learner centered, forcing students to reflect on their previous knowledge and research information in order to complete the assignments. Direct instruction will be used to ensure students have an understanding of the basic functions of Excel, but students will have opportunities to express their personal knowledge of topics. There are several group work and paired sharing activities that will allow students to interact with their peers and participate in a give and take relationship to reach a common goal. There will also be a hands-on investigation that allows students to take the project into their own hands and give them a deeper ownership of their final assignment.

## **Day 1**

### Budget basics and previous knowledge

#### **Grade Level**

Middle school grade 6

#### **Time allotment**

60 min block

#### **Curriculum Area**

Middle school Mathematics, Economics, and Technology

#### **Learning Objectives**

1. Students will access their previous knowledge to share what they know about budgets
2. Students will successfully navigate the internet to find and record vocabulary definitions that pertain to the unit.
3. Students will work together in groups of two and five to discuss and compare information about budgets and key vocabulary.

#### **Curriculum Standards**

##### *Reading, Writing*

##### 1.1.8 Learning to Read Independently

- A. Locate appropriate texts (literature, information, documents) for an assigned purpose before reading.
- B. Use knowledge of root words as well as context clues and glossaries to understand specialized vocabulary in the content areas during reading. Use these words accurately in speaking and writing.
- F. Understand the meaning of and apply key vocabulary across the various subject areas.

#### **Technology Standards**

##### *NT.K-12.1 Basic operations and concepts*

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

##### *NT.K-12.5 Technology Research Tools*

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

#### **Resources**

##### *Hardware*

- Five classroom computers

- Six Monitors (one on each group table)
- VGA splitter
- Teacher Laptop

### *Software*

### *Relevant Material*

- Internet connection on classroom computers
- Class binder
- Pencils
- Vocabulary list

### **Activities**

#### Opening Writing Assignment and discussion

(20 min)

- 1) As students enter the class, have students answer the following question posted on their table monitor:

“What is a budget?”

2. Students will record their thoughts in their Daily question section of their binder.
3. Students will talk in their table group and pick best definition to share with the class.
4. Each group will share their best definition and list them on the board.
5. Once every group has listed their definition, have the following definition displayed on the group table monitors.
  - i. A **budget** is a financial document used to project future income and expenses. The budget can be used to estimate whether a person can continue to survive with their current income and expenses.
6. Have a student read aloud to class.
7. Discuss any vocabulary in definition they might not understand
  - a. Financial- having to do with money
  - b. Project- To look forward and plan
  - c. Estimate- To guess
8. Hand out the vocabulary list to each student
9. Have student’s record definition of budget.

**Place students in pairs for the next set of activities. Each activity will be 15 minutes, switching groups once to complete second activity. Observe and facilitate any difficulties or questions students might have during activities.**

Activity one: Unit Definitions

(15min)

1. Student will work on the classroom computers to search online dictionaries and sites to locate the definitions of vocabulary words.
  - a. Each pair could have different definitions based on their search results
  - b. If students have difficulty locating definitions, guide them to an online dictionary or encyclopedia for assistance.

Activity two: Writing activity and discussion

(15 min)

1. Students will discuss in their pairs “What would be on a budget” based on what we they have learned.
2. Each pair will create and turn in a list of what they think would be on a budget.
  - a. Give each group a topic graphic organizer to record their ideas.

Wrap Up

(10 min)

1. Once students have completed both paired activities, spend the last minutes of class reviewing the definition of a budget and answering any questions students might have about the basic concept of a budget.
2. Inform students that definitions and budget organizers will be reviewed during tomorrow’s class.
3. Have students record their homework assignment in their homework book.

**Homework**

1. Students will take their vocabulary lists home and discuss them with their parents, seeing if they have any personal experiences with budgets.
2. Students will write a paragraph based upon their conversations with their parents.

**Assessment**

1. Students will be assessed on their vocabulary list based upon completion and correctness.
2. Students will be given daily participation points based on their paired work activity.
3. Students will be graded on their opening writing assignment.
4. Students will be graded on their homework writing assignment.

## Day 2

### Sample Budget

#### **Grade Level**

Middle school grade 6

#### **Time allotment**

60 min block

#### **Curriculum Area**

Middle school Mathematics, Economics, and Technology

#### **Learning Objectives**

1. Students will recall prior knowledge from previous class discussions.
2. Students will work together to discuss what is on a budget.
3. Students will identify what is found in a budget.
4. Students will interpret an example spreadsheet budget focusing on specific topic questions.
5. Students will be able to calculate interest on money owed and monthly expenses totals.

#### **Curriculum Standards**

##### *Economic standards*

##### 6.5.6 Work and Earnings

- E. Describe how people accumulate tangible and financial assets through income, savings and financial investment.

#### **Technology Standards**

##### NT.K-12.1 Basic operations and concepts

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology

##### NT.K-12.2 Social, Ethical and Human Issues

- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

##### NT.K-12.3 Technology Productivity Tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

## Resources

### *Hardware*

- Teacher Laptop

### *Software*

- VGA splitter
- Six monitors (one on each group table)
- Microsoft Excel

### *Relevant Material*

- Pencils
- Class binder
- Budget graphic organizer from last class
- Budget list handout
- Excel example monthly budget

## Activities

### Opening assignment

(15 min)

1. As students enter the classroom, students will complete the following task that will be posted on their table monitors.
  - a. Discuss with your table group what your parents shared with you about budgets.
  - b. Create a group list of what should be in a budget
2. One member of each group will write their list on the board.
3. Come up with a class list of what should be on a budget.
  - a. Make sure the following items are included. If items are not on any of the group lists, guide discussions to have students add them.
    - i. Rent, car payment, car insurance, utilities (gas, electric, phone), groceries, fuel cost, credit card (at least one), spending money, savings.
4. Have students put their budget list in their class binder.

### Vocabulary review

(10 min)

1. Have students bring out their completed vocabulary list.
  - a. Have students read their definitions to the class
2. Hand out teacher vocabulary list with definitions.
  - a. Review definitions and answer any questions might have about definitions.

### Example budget

(25 min)

3. Hand out sample budget to every student.

4. Have students work in table groups to discuss the excel spreadsheet.
  - a. Assign one question to each table group to be answered.
    - i. How should you change your budget if you need to save more money?
    - ii. Why is it important to keep track of a balance of money owed?
    - iii. What does a higher or lower interest mean to monthly finance charges?
    - iv. How do you get the monthly expenses?
    - v. What does it mean when the monthly expenses is higher than the monthly income? Income higher than expenses?
    - vi. How do you calculate the interest of the car payment and credit card?
  - b. Students should use their vocabulary lists to review unfamiliar terms.
5. Students will record their answers on their sample budget
6. Students will then choose one member to share their answer with the class, giving a few minutes for discussion or questions between each group.
7. If students have not been able to correctly answer any of the questions, review them with the class.
  - a. Answers to above questions should reflect the following.
    - i. You could either lower some of your expenses, making lower payments or cutting back in certain areas. You could also increase your income by working more hours or working a second job.
    - ii. If you do not keep track of the money you owe, you take the risk of falling behind in payments or spending too much money and falling into dept.
    - iii. The higher the interest rate, the higher the finance charges at the end of each month. The lower the interest rate, the lower the finance charges will be.
    - iv. You add all of your expenses each month to give you the total amount you have spent.
    - v. If the monthly expenses are higher than your income, you are spending more money than you make and will be losing money from your savings. If your income is higher than your expenses, you will be able to put money away in your savings.
    - vi. You multiply the balance of money owed by the APR (decimal form) and then divide it by 12 (number of months in a year).\
8. Students will place their example budgets in their class binders for later use.

### Closure

(10 min)

1. Open a discussion with students about why a budget is important in life and how it could help you save money.

### **Assessment**

1. Students will be assessed on their group lists of what is on a budget
2. Students will be given daily participation points on their group assignments.
3. Students will be graded on their group's budget question.



## Day 3

### Creating a lifestyle

#### **Grade Level**

Middle school grade 6

#### **Time allotment**

60 min block

#### **Curriculum Area**

Middle school Mathematics, Economics, and Technology

#### **Learning Objectives**

6. Students will recall prior knowledge from previous class discussions.
7. Students will navigate the internet to choose items crucial to create a budget.
8. Students will complete a budget lifestyle sheet to help create their personal budget.

#### **Curriculum Standards**

##### *Economic standards*

##### 6.5.6 Work and Earnings

- E. Describe how people accumulate tangible and financial assets through income, savings and financial investment.

#### **Technology Standards**

##### NT.K-12.1 Basic operations and concepts

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology

##### NT.K-12.2 Social, Ethical and Human Issues

- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

##### NT.K-12.3 Technology Productivity Tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

##### NT.K-12.5 Technology Research Tools

- Students use technology to locate, evaluate, and collect information from a variety of sources.

- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

## **Resources**

### *Hardware*

- Computer lab with a computer for every student

### *Software*

- Microsoft word

### *Relevant Material*

- Internet access
- Pencils
- Class binder
- Budget graphic organizer from last class
- Budget list handout

## **Activities**

### Opening assignment

(10 min)

1. As students are coming into class, have the following statement displayed on the table monitors for students to discuss:
  - a. How would you determine how many miles you drive in a month with an average of 15,000 miles driven a year?
2. Have students record their answers in their daily question section of their binder.
3. Pick a student to share their answer.
  - a. Divide 15,000 by 12 months. (1250 miles a month)
4. Explain to students that they will need to remember this for the activity later in class.
5. Once students have completed the opening assignment, they should take out their vocabulary list, budget list and sample budget.

### Looking up Budget lifestyle information

(40 min)

1. Hand out budget Lifestyle list to students.
2. Explain to students that they will be spending this class in the computer lab looking up the specific information listed on their handouts.
  - a. Students are free to choose any thing they like for each section, but must locate specific information.
  - b. Students are to use different search engines like yahoo or ask to locate the information.
  - c. Students who have difficulty locating information may be given the lifestyle help sheet to aid in finding information.
3. Facilitate any problems or questions students might have about navigating

through the sites.

- a. Advise students to write their questions down and move onto another section until it can be addressed.
4. Students will record their choices on their budget lifestyle handouts.

#### Closure

(10 min)

1. When there is ten minutes left in class, have students finish their current section and close all of their programs.
  - a. Inform students that they will be able to finish during next class if they have not completed their entire handout.
2. Return to class and have students discuss the difficulties they had finding information online in their table groups.
3. Collect student's budget lifestyle handouts.

#### Assessment

4. Students will be given daily participation for their proper use of the computer lab material.
5. Students will be assessed on the completion of their budget lifestyle list.
6. Students will be assessed on their homework writing assignment.

#### Homework

1. Students will write a paragraph about why they chose their career and if their salary will be able to support their expenses when they complete their budget.

## Day 4-5

### Making a budget

#### **Grade Level**

Middle school grade 6

#### **Time allotment**

60 min block

#### **Curriculum Area**

Middle school Mathematics, Economics, and Technology

#### **Learning Objectives**

9. Students will apply knowledge gained from this unit to create their own yearlong Excel budget.
10. Students will determine if they can survive financially with the lifestyle they have chosen.
11. Students will compute interest for both their car loan and credit card.
12. Students will apply the SUM formula in their excel budgets to add amounts together.

#### **Curriculum Standards**

##### *Math standards*

#### **2.2.8 Computation and Estimation**

A. Complete calculations by applying the order of operations.

#### **2.3. Measurement and Estimation**

A. Solve rate problems (e.g.,  $\text{rate} \times \text{time} = \text{distance}$ ,  $\text{principal} \times \text{interest rate} = \text{interest}$ ).

#### **2.5. Mathematical Problem Solving and Communication**

A. Invent, select, use and justify the appropriate methods, materials and strategies to solve problems.

B. Verify and interpret results using precise mathematical language, notation and representations, including numerical tables and equations, simple algebraic equations and formulas, charts, graphs and diagrams.

C. Justify strategies and defend approaches used and conclusions reached.

D. Determine pertinent information in problem situations and whether any further information is needed for a solution.

## *Economic standards*

### 6.5.6 Work and Earnings

- E. Describe how people accumulate tangible and financial assets through income, savings and financial investment.

## **Technology Standards**

### NT.K-12.1 Basic operations and concepts

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### NT.K-12.5 Technology Research Tools

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

### NT.K-12.6 Technology Problem Solving and Decision Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

## **Resources**

### *Hardware*

- Teacher laptop
- 6 monitors on group tables\
- VGA splitter
- Computer lab with a computer for every student

### *Software*

- Microsoft excel

### *Relevant Material*

- Internet access
- Pencils

- Class binder
- Budget graphic organizer from last class
- Budget list handout
- Vocabulary list
- Sample monthly budget
- Blank Excel spreadsheet

## Day 4 Activities

### Opening assignment (5 min)

1. As students come into class, hand back their lifestyle handouts.
2. Have the following list of material needed for class posted on group monitors:
  - a. Vocabulary list
  - b. Budget lifestyle list
  - c. Sample monthly budget
  - d. Budget graphic organizer

### Excel formulas (30 min)

3. Students will look at their example monthly budget and follow along as teacher demonstrates how to input the following functions in the excel program on the group table monitors.
  - a. Students can take notes on their example budget for later use in creating their own budget.
4. Introduce the “=Sum ()” formula to the class.
  - i. This is the formula that makes it easy to add a group of numbers together.
  - ii. If you are adding amounts that are either vertically or horizontally sequential you use an ‘:’ between the first and last amount.
  - iii. If you have amounts separated by items not wanting to be added together, you use a ‘,’ after every item added together.
5. Car Loan balance:
  - a. Highlight cell pertaining to the balance of car loan (B4) and input the following information:
    - i. =9000-SUM(E4)+ SUM(F4)
    - ii. This tells Excel to subtract all of the payments made each month and to add the finance charge from interest each month.
    - iii. The beginning amount is the price of each student’s car they purchased.
6. Credit Card
  - a. Ask students if they could tell you the formula for finding the balance.
    - i. Same as the car loan but different cells.
    - ii. =5000-SUM(E5)+SUM(F5)
    - iii. Interest rate for car loan and credit card
  - b. Multiply the balance owed by the APR and then divide it by 12
    - i. You must first place the APR in decimal form
    - ii. You divide by 12 because APR is for the entire year and you need

each months finance charge to keep a accurate balance of your loans.

7. Monthly expenses
  - a. Ask students how they would find the monthly expenses.
    - i. Adding all of the expenses in the month Colum together.
  - b. Ask students what cells you would add together for the monthly total for January.
    - i. E3 through E12
  - c. Highlight cell E13 to show students the proper way to write the formula
    - i. =SUM(E3:E12)
8. Monthly income
  - a. Use the SUM formula to add your paychecks together
  - b. Ask students to state what correct formula should be entered in for the example budget
    - i. =SUM(E17:E19)
9. Money in savings
  - a. Ask students how they would compute how much money they would have in their savings at the end of the month.
    - i. Subtract the expenses from the income of a given month
  - b. Ask students what the formula they would use for finding the amount saved.
    - i. =E16-E13

#### Hand writing a budget

(20 min)

1. Hand out a blank excel sheet to each student.
2. Students will use the notes taken from class explanation of Excel formulas to hand write their budgets with their budget lifestyle list they researched and sample monthly bills supplied by parents.
  - a. Students should include the following on their budget
    - i. Month columns, Interest columns, specific expenses, balances of credit card and car loan (Each student will have a credit card with a balance of \$5000 and an APR of 12%), due date (any date in the month), monthly expenses, monthly income and money in savings (each student will start with \$2000 in savings).
  - b. Allow students to discuss possible problems with their table groups before asking the teacher.
3. Collect student's budgets to be checked for errors or confusions.

#### Closure

(5 min)

1. Explain to students that tomorrow they will be given back their hand written budgets with comments on them so they can correct any errors before they create their final budget assignment.

## Day 5 Activities

### Opening activities

(15 min)

1. Hand back students written budgets with notes and comments made for any corrections needed to be made.
2. Allow students a few minutes to discuss with their table groups how they could correct problems.
  - a. Facilitate students as they attempt to correct their budgets.
3. Have students turn in their writing assignment they completed for homework.
4. Discuss with students what expenses might increase or decrease during certain parts of the year, allowing them to give examples.
  - a. During the winter the gas bill might increase due to need for maintain a warmer temperature during the cold months.
  - b. During the summer the electric bill might increase due to the need to maintain a cooler temperature during the hot months.
  - c. Having a family dinner or cookout with friends can raise a month's grocery bill.
  - d. A long trip can cause your monthly gas bill to increase.
  - e. An unexpected car repair can cause your spending money to be higher than expected.

### Creating budget on Excel

(40 min)

1. Students will spend the remainder of class working in the computer lab creating their budgets, extending their data for the entire year.
2. Students should take in account for the possible expenses change during parts of the year and estimate possible cost accordingly.
  - a. Students will be given pieces of papers that state specific increases or decreased in expenses for a given month and students must adjust their budget accordingly in order not to send their account into the negative.
    - i. Example: You had a party for friends in February and spent an additional \$45 on groceries.
3. Students will use all of the handouts and data researched to complete their budgets.

### Closure

(5 min)

1. Have students print their budgets and turn them in.
2. Once back in the classroom, have final writing assignment posted on the table group monitors:
  - a. "With the lifestyle date you researched and chose for your budget, would you be able to financially survive over a long period of time? If you do not believe you could, how can you change your budget to ensure economic success?"
3. Students will have two days to complete this assignment.

## Assessment

7. Students will be given daily participation points for taking notes during class demonstration of formulas



8. Students will be given daily participation points for staying on task while working in the computer lab
9. Students will be assessed on completion of their personal budget.
  - a. Filling in budget with correct formulas discussed in class
  - b. Adjusting budget according to specific changes in expenses.
10. Students will be assessed on a writing assignment given at the end of day 4
11. Students will be assessed on the final writing assignment given once budget has been completed.

#### **Homework Day 4**

2. Students will write a paragraph on what could cause different expenses to rise or drop throughout the year, discussing specific instances.