Cover Page

Emporia State University Teacher Work Sample
Analysis of Student Learning

Candidate Name:	
Candidate Phone Number:	
Candidate ID Number:	
Name of School:	RST06 High School
TWS Content Area:	Earth Science
Grade Level:	9th
Date Submitted: (to be filled in by ESU staff)	
TWS Number: (to be filled in by ESU staff)	

This is verification that the candidate submitting this TWS is a student teacher/intern at this school and that to the best of my knowledge this is the work of the candidate submitting the TWS.

Signature of Supervising/Mentor Teacher: _____

My signature verifies that this TWS is my own authentic work. I understand that obtaining, or attempting to obtain, a passing grade on a TWS by falsification or misrepresentation may result in a failing grade in a course or expulsion from the teacher education program.

Signature of Candidate Submitting the TWS: _____

Remember: Completed TWS may be submitted to Associate Dean, Dr. Steven Neill, in one of three ways: (1) electronically to sneill@emporia.edu and two paper copies will be made by The Teachers College, (2) hand deliver two paper copies to Visser Hall 211, or (3) mail two paper copies to ESU, Attn. Dr. Neill, Box 4036, Emporia, KS 66801. TWS MUST be received NO LATER THAN 5:00 p.m. November 27, 2006.

Demographic Information Sheet
(Attach to your completed TWS after the cover page)

Please indicate:

Your certification/licensure level (check all that apply):

_____ Early Childhood (Birth - Grade 3)   __X___ Secondary (Grades 6 - 12)

_____ Elementary (Grades K - 6)   _____ Dual (Elem. and Secondary, Grades PK - 12)

__X___ Middle School (Grades 5 - 8)

Your certification/licensure area(s) (check all that apply):

_____Art	_____Lang. Arts, Middle Level	_____Physics
_____Biology	_____French	_____Psychology
_____Business	_____Health	_____Science, General
_____Chemistry	_____Journalism	__X__Science, Middle Level
_____Early Childhood Ed.	_____Mathematics	_____Social Studies-Middle Level
_____Early Child., handicap	_____Mathematics, Middle Level	_____Social Studies
__X__Earth-Space Science	_____Music	_____Spanish
_____Elementary	_____Physical Education	_____Speech and Theatre
_____Language Arts	_____Physical Science	_____Other:_____
_____ESOL		

Identify the course, unit content area, (e.g., "Language Arts," "Biology," "Math," Social Science," etc.), and grade level(s) of your Teacher Work Sample.

Course Earth Science   Content Area Earth-Space Science

The grade(s)/level of students in your classroom (check all that apply):

_____Preschool	_____4th Grade	__X__9th Grade
_____Kindergarten	_____5th Grade	__X__10th Grade
_____1st Grade	_____6th Grade	_____11th Grade
_____2nd Grade	_____7th Grade	_____12th Grade
_____3rd Grade	_____8th Grade	

Factor 1. Contextual Information and Learning Environment Adaptations

A) Explanation of <u>community</u> factors that impact my planning and teaching

- Industrial and farming community

- Middle sized community with a population of 26,760

- Median household income is below state average ($30,809)

B) Explanation these factors that impact my planning and teaching

1. District

- Significant transient Hispanic student population

- Qwest program(after school) in place all buildings

- Enrollment for the district was 4939 according to 2004-2005 report card

- 1200 employees in the district

- District budget is 60.5 million dollars

2. Classroom physical setting

- Crowded room

- Two person tables with chairs

- Limited room for equipment and supplies

- Separate Science Department computer lab

3. School population, including socio-economic status (SES) make-up

- 3.93% migrant students

- 14.59% Limited English Proficiency Students

- 44.16% Economically Disadvantaged Students

- 13.83% Disabled Students

- 49% Females

- 51% Males

- 95.8% average daily attendance

- 83.2% graduation rate

- 3.4% drop out rate

C) Explanation these factors that impact my planning and teaching

1. Classroom's ethnic/cultural make-up

   - 12 Caucasian students, 12 Hispanic students, and one Asian student

2. Classroom's gender make-up

   - 15 female students, 10 male students

3. Classroom students' with *special needs*/at-risk students

   - 2 students with IEPs for below level reading issues

   - 1 student with a medical alert for a history of seizures

4. Classroom students' *developmental characteristics*

   - 4 students read/write above grade level, 14 students read/write at grade level, 7 students

     read/write below grade level

Optional Contextual Factor Table

Contextual and Environmental Factors	Identify source of Factor: *Community*, District, School, or Classroom	Implications for Instruction
Industrial and Farming	Community	Provide real life examples and applications to tie material into students' lives
Low socioeconomic Community	Community	Avoid activities which require students to buy materials.
Significant Transient Hispanic Population	District	Pre-testing, evaluations, tutoring, communication with parents
Each Building Has After School Program	District	Extra assistance will be available for students as needed
2 IEP Students	School	Attend IEP meetings, provide accommodating instruction/assignments according to the student's IEP

Mixed ethnic backgrounds	Classroom	Include different ethnic and cultural information, viewpoints and experiences into the daily curriculum
10 Boys, 15 Girls	Classroom	Call on male and female students equally, provide information about male and female professionals in the science field
2 below grade level readers	Classroom	Provide extra time and help with assignments, allow alternative testing formats
Adolescents are still developing socially	Classroom	Group students heterogeneously (both genders and ethnicities) for discussions and activities, promote respect and acceptance
Partitions on tables make it hard to see every student and for every student to see the board	Classroom	Arrange tables so that partitions are perpendicular to the board, walk around the classroom while teaching to monitor students

D) QPA/NCA school improvement plan and state assessment data. School Improvement Plan: RST06 School

Reading Intervention: All students will learn and use standards based reading strategies

- . Implementations

    o Targeted reading students from the state assessment will receive intensive instruction

      focusing on vocabulary development and reading strategies.

    o All Teachers will use vocabulary and reading strategies to teach comprehension skills

      to all students.

    o Students will learn and use specific comprehension skills.

    o Teachers will implement reading comprehension and vocabulary strategies after

      collaborating in Professional Learning Communities (PLC)

Math Interventions: - All students will solve problems using the problem solving model in all content

      areas.

      - All students will use the problem solving graphic organizer in all content areas.

      - All students will learn and use grade level appropriate math standards.

- Implementations

  o Teachers will create a problem solving graphic organizer and rubric which will be used by the faculty as a resource for improving problem solving skills in their classrooms.

  o Teachers will create posters of the problem solving graphic organizer to hang in all classrooms. These posters will be presented in both English and Spanish. They will serve as reminders and lesson aids.

  o Teachers will implement the use of problem solving in their content areas.

  o Students will take semester tests that mirror the state assessment format.

  o Math teachers will teach test-taking strategies and vocabulary of the state assessment.

  o Teachers will develop a rubric for selecting students for the "Making the Grade" class.

  o Low achieving students will be enrolled in a one-semester "Making the Grade" class.

  o Math teachers will use small group learning to give the students an opportunity to read, write, listen, and speak every week.

  o Targeted students will be familiarized with the state assessment process through a two-week seminar pull-out program.

E) Explanation of *community* characteristics, and district, school, classroom, and student, factors and implications for instruction

Factor 2.   Unit Learning Goals and Objectives

A) Course, unit content area, and grade level of the Teacher Work Sample:

   Course: Earth Science
   Unit: Space
   Grade level: 9th grade

B) Rationale for choice of unit objectives:

   The unit objectives for this space unit were developed using ABC State Science Standards (grades

8-12) 1 and 4. Standard 1, Benchmark 1 is a general science standard that should be included in all

science disciplines. Teaching scientific inquiry through basic scientific method and research procedures provides students with the tools necessary to systematically work through problems to find a solution. Standard 4, Benchmarks 3 and 4 cover space science, characteristics of and objects in our solar system, characteristics, organization and origin of our universe. Objectives were chosen to align with chosen benchmarks and subsequent indicators to guide and assess students in accordance with the ABC State Science Standards.

C) Standards that the outcomes are aligned with:

Standard 1: Science as Inquiry – The student will develop the abilities necessary to do scientific inquiry and develop an understanding of scientific inquiry.

 Benchmark 1: The student will demonstrate the abilities necessary to do scientific inquiry.

Standard 4: Earth and Space Science – The student will develop an understanding of energy in the Earth system, geochemical cycles, the formation and organization of the Earth system, the dynamics of the earth/moon/sun system, and the organization and development of the universe.

 Benchmark 3**:** The student will develop an understanding of dynamics of our solar system.

 Benchmark 4: The student will develop an understanding of the organization of the universe and its development.

D) Unit learning goal and outcomes for this instructional sequence.

Goal(s): Students will demonstrate knowledge and understanding of the Earth's movement in the solar system, stars, galaxies and our universe.				
Indicate TWS objectives with *	Objective #	Stated Objective	Level of objective	Domain of objective
	1	TSW identify the characteristics of the universe.	Low	Cognitive
*	2	TSW identify the visible and non-visible parts of the electromagnetic spectrum.	Low	Cognitive
*	3	TSW identify refracting, reflecting and invisible electromagnetic radiation detecting telescopes.	Low	Cognitive
*	4	TSW identify how astronomers determine the composition and temperature of stars.	Low	Cognitive
	5	TSW identify the characteristics that identify a constellation.	Low	Cognitive
	6	TSW identify the three main types of galaxies and how a quasar differs from these galaxies.	Low	Cognitive
	7	TSW describe the evidence of Earth's rotation and revolution around the sun.	Middle	Cognitive
*	8	TSW explain how the Earth's rotation and revolution provide the basis for measuring time.	Middle	Cognitive
*	9	TSW demonstrate/describe how the tilt of the Earth's axis and the Earth's movement cause seasons.	Middle	Cognitive
	10	TSW explain how Hubble's discoveries lead to an understanding that the universe is expanding.	Middle	Cognitive
*	11	TSW construct and use an HR Diagram to show the life cycle of stars.	High	Cognitive
	12	TSW describe the big bang theory and evaluate evidence supporting the theory.	High	Cognitive

Factor 3. Instructional Design and Implementation

A) Design for Instruction Table.

Design for Instruction Table

Time-line	Learning Objectives	Instructional Activities, including interdisciplinary activities	Assessments	Resources and Technology	Teaching and Reading adaptations for specific students and subgroups based on identified contextual and/or pre-assessment needs
Day 1	1, 2, 3, 4	1.Pre-assessment 2. TSW read Chapter 26, Section 1 and complete the Directed Reading worksheet. 3. Direct Instruction, Power Point presentation: characteristics of the universe, electromagnetic spectrum, telescopes 4. TTW demonstrate spectrum analysis using spectrum tubes and diffraction gradient glasses.	Pre-assessment	Directed reading worksheet, laptop, projector, Power Point presentation, lens, prism, spectrum tubes, diffraction glasses, Identifying Spectrums worksheet	Below Level Readers/Writers: prepared outline for notes w/ illustrations and vocabulary sheet
Day 2 (early out)	2 & 3	1. Video: "Countdown to the Invisible Universe" 2. TSW complete a series of questions (from the video) during/after video		Television, VCR, worksheet of questions from the video	Below Level Readers/Writers: allow students to view video again while answering questions, extra time

Day 3	7 & 8	1. TSW read Chapter 26, Section 2 and complete the Directed Reading worksheet 2. Direct Instruction: Power Point presentation- Earth's rotation and revolution around the sun, measuring time. 3. "Why is time different around the world" activity		Directed reading worksheet, laptop, projector, Power Point presentation, "Why is time different around the world" directions/ worksheet, notes outline and vocabulary sheet	Below Level Readers/Writers: prepared outline for notes w/ illustrations and vocabulary sheet
Day 5	8 & 9	1. Computer program: Earth's rotation and revolution w/ quiz (part of program) 2. Direct Instruction: Power Point presentation – measuring time, Earth's seasons 3. Assignment: Students will write a one page paper on how the movement of Earth creates the basis for our time and seasons.		Computer lab, software, laptop, projector, Power Point presentation, writing rubric, notes outline and vocabulary sheet	Below Level Readers/Writers: prepared outline for notes w/ illustrations and vocabulary sheet, extra time for assignment and alternative oral assignment
Day 6	2, 3, 8, 9	1. Review/Question session 2. Brain Food Review Game 3. Study time or work on writing assignment		Television, DVD player, Brain Food CD	No adaptations needed/ adaptations already made

Day 7	2, 3, 8, 9	1.Chapter 26 Test 2. United Streaming Video: "A Lood to the Stars"	Chapter 26 Test	Tests, Answer cards, Television, laptop, projector	Below Level Readers/Writers: modified test, aide to read test to student, extra time, alternative setting for test
Day 9	4, 11	1. TSW read Chapter 30 Section 2 and complete the Directed Reading worksheet 2. Direct Instruction, Power Point presentation: composition, temperature and brightness of stars 3. TSW start the "Properties of Stars" activity where they will create an HR diagram.		Directed reading worksheet, laptop, projector, Power Point presentation, "Properties of Stars" activity information worksheet, notes outline and vocabulary sheet	Below Level Readers/Writers: prepared outline for notes w/ illustrations and vocabulary sheet, extra time for assignment
Day 10	11	1. TSW finish the "Properties of Stars" activity		Overhead projector, transparencies of "Properties of Stars" activity and sample graph	No adaptations needed/ adaptations already made
Day 14	4, 11	1. Review/Question session 2. Brain Food Review Game 3. Chapter 30 Test 4. Post Test	Chapter 30 Test Post Test	Television, DVD player, Brain Food CD, tests, answer cards	Below Level Readers/Writers: modified test, aide to read test to student, extra time, alternative setting for test

B) Narrative

1) Explanation of how the instructional plan addresses multiple types/levels of learning throughout the unit

- Direct instruction in the form of a lecture/Power Point presentation caters to visual and auditory learners at the same time.

2) Explanation of how adaptations effectively address the specifically identified contextual needs of the individuals, small *group*, or class.

- Providing below level readers/writers with outlines for notes, vocabulary terms/definitions, extra time for assignments and tests as well as alternative oral assignments allows these students to stay on or close to the same pace as the rest of the class.

3) Justification of how the unit actively engages students in questioning concepts, developing learning strategies, seeking resources and conducting independent investigations.

- Directed reading guide helps students learn to navigate a difficult textbook in order to obtain and retain information pertinent to the lessons.

- Providing instruction in many forms (i.e. auditory and visual direct instruction, construction of visual aids, technology oriented computer program) allows students to experience instruction in ways that might expand their learning strategies.

- Identifying common misconceptions during lectures and activities will help students to compare their previous knowledge to correct or more advanced concepts.

- Writing assignment forces students to seek outside information in the form of resources for the paper.

4) Explanation of implementation of instructional strategies for student use of reading materials related to the subject. Explanation of how these strategies incorporate techniques that allow for assisting with a wide range of reading concerns and abilities.

- Directed reading guide helps students learn to navigate a difficult textbook in order to obtain and retain information pertinent to the lessons.

- Below level reading students should find that the directed reading guide helpful in that they are not struggling to read every word of the whole chapter. The guide basically tells them where to read carefully, when to skim and what information they need to remember for future use.

5) Explanation of how technology makes a meaningful contribution to learning or a rationale is given why it is inappropriate to use technology with students in this particular lesson.

- Presenting information using a Power Point presentation and a projector makes it easier and more fun to follow along and take notes. It also allows photography and illustrations to be shared and discussed as a whole class.

- Computers and computer programs allow students to experience simulations and illustrations/photographs that would not be possible without this technology. Programs also help in the space unit by making space objects such as planets and stars more accessible to students.

6) Explanation of how instructional design and implementation demonstrates knowledge of specific factors in the students' environment outside of school; how this knowledge is included in the plan for instruction.

- With a high percentage of students from low income families, instruction is designed to be free of items which would need to be purchased by the individual student.

- Below level reading/writing students are given extra support during reading, writing and note taking activities to support their learning. After school tutoring programs could also be beneficial to these students.

Factor 4. Demonstration of Integration Skills

A) Content areas being integrated
- Reading, Writing, History, Physical Science

B) Topics within the subject being integrated:
- Reading strategies with the Directed Reading guide

- Writing complete sentences and paragraphs

- History of space exploration

- Light behavior/optics

C) Explanation of how the instruction plan created learning experiences in which students integrate knowledge, skill, and methods of inquiry from other subject areas, and within a subject area.

From other subject areas:
- Days 1, 3 and 9 - Using the Directed Reading guide to help students read the text more

   efficiently.

- Days 3, 5, 9 and 10 – Students must use complete sentences and good grammar when

   completing questions for activities and writing a paper.

- Day 2 – Video discusses a brief history of technology used for space exploration

Within my subject area:
- Day 1 – Discussion of light, lenses and mirrors

Factor 5. Analysis of Classroom Learning Environment

A Description of classroom environmental factors that affect learning

- Small, cramped classroom

- Two person tables with chairs – tables run perpendicular to white board and projector

   screen, forcing some students to turn away from the table to see the front of the room

 B) Description of individual student motivation strategies used

- Strategies for motivating an at-risk student.

   o Build activities around the student's interests.

   o Start with small tasks that build to larger activities to build confidence.

   o Provide lessons and assignments with real world connections/applications.

- Strategies for motivating a student with special needs

- Help students build studying, research and time management skills.

- Start with small tasks that build to larger activities to build confidence.

- Provide lessons and assignments with real world connections/applications.

C) Description of group motivation strategies used

- Strategies for motivating minority students

  - Provide information about minorities in the working in the subject area.

  - Build activities around the student's interests.

  - Start with small tasks that build to larger activities to build confidence.

  - Provide lessons and assignments with real world connections/applications.

D) Description of how verbal communication among students was developed

- Students worked with their table partner on daily assignments, review questions and in the computer lab

- At the beginning of the year, a class discussion took place on the importance of positive and productive communication between partners and the class as a whole.

E) Description of how nonverbal communication among students was developed

- Also included in the communication discussion was the importance of appropriate and positive body language as nonverbal communication. Examples of inappropriate nonverbal communication included eye rolling, pencil tapping, not looking at speaker, etc.

F) Description of at least three classroom management strategies that will provide evidence of a sufficient and comprehensive classroom management plan.

- Strategies for managing transitions from one topic to another

  - Make transitions smooth by staying on task and keeping transition times short.

- Give the students a signal or specific time to stop working and get their things

together to leave class.

- Start assignments as a class to get students started and reduce wasted time.

- Begin each class with the same routine and a start up activity

- Consequences for common negative behaviors

    1. Verbal reprimand or nonverbal signal
    2. Change of seat
    3. After school conference with student
    4. Call to parents
    5. Office referral

- Communication to parents regarding behavior problems

Communication with parents should start with a simple phone call to let them know

of the problem. If necessary, a conference may be arranged to discuss long term

solutions to end problem behavior.

- Strategies to keep students on task.

- Use eye contact to remind students they need to get back on task.

- Walk over to the student and verbally remind the student to get to work.

G) Description of motivational techniques used and how they are applied in the unit.

Space is often interesting to students, but can also be thought of as a difficult thing to

understand. To help motivate students and keep understanding high, activities and discussions

usually began with comparisons to things the students already knew about. When discussing

the electromagnetic spectrum, we led off by talking about rainbows, microwaves, and x-rays

at the doctor's office. Once the students realized that they already know quite a bit about the

subject, it was easier to keep their attention. Providing students with real world applications

of their knowledge also helped keep the students interested in the topics.

H) Evidence of effective <u>student-to-student</u> *communication* specific to the learning.

    Students practiced effective communication with their partner almost every day of the unit. Students worked with partners in the computer lab to work through the program and collectively answer conclusion questions. Partner discussion was utilized during activities such as the Properties of Stars activity to work through instructions and produce accurate HR diagrams.

I) Description of examples of inquiry learning that show an environment that involves students in inquiry learning activities.
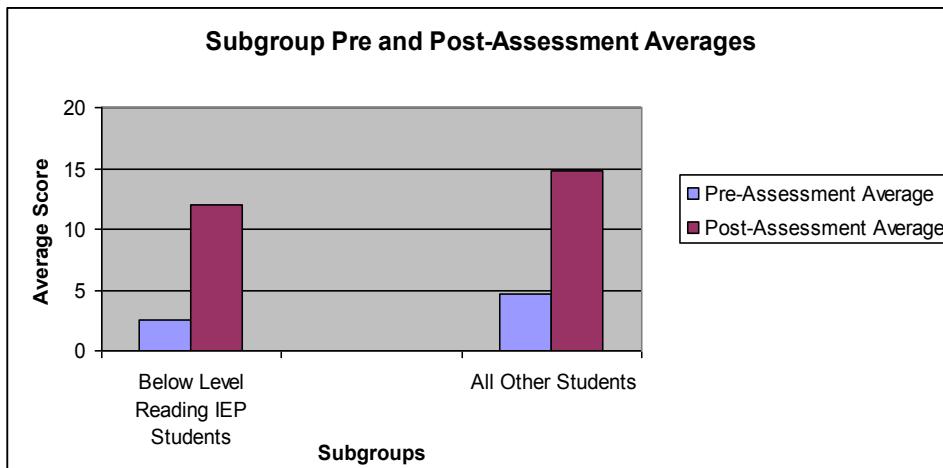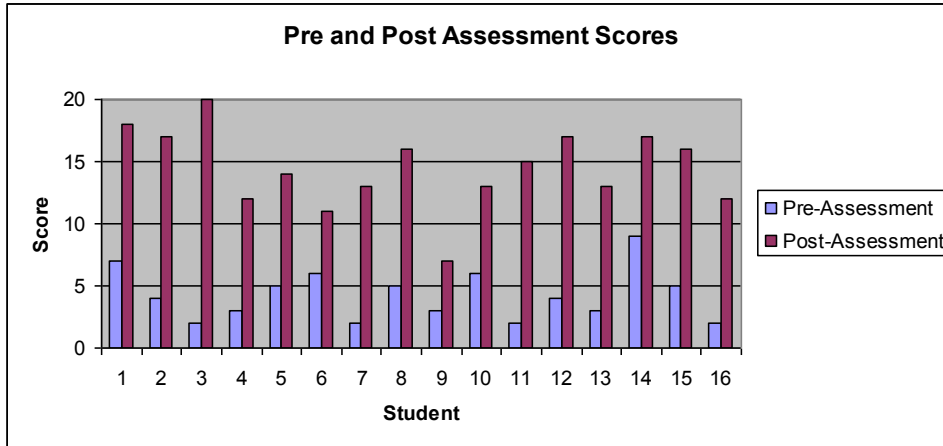
    Students were required to research and write a one page paper discussing/explaining how Earth's movements provides the basis for measuring time and our seasons. Students were briefly introduced to the topic but research and analysis was required to gain the information needed to write the paper. This allowed students to practice researching, drawing conclusions and creating an original product.

J) Description of how students are actively involved in most learning activities and in cooperative or group work.

    Learning activities such as Properties of Stars, Why is Time Different Around the World? and the computer program on Earth's rotation and revolution required students to take an active roll in the activity. These activities provide opportunities for students to question misconceptions, use the scientific method and think critically. Activities such as Properties of Stars and the computer program relied on cooperative partner communication as a part of the requirements and individual grade of the student.

Factor 6. Analysis of Assessment Procedures

A) Graphic representation of *pre-assessment* and *post-assessment* data. *Disaggregated data* for at least one pair of subgroups. Note that a table is not a graphic representation.

Pre and Post Assessment Scores

Score (y-axis: 0, 5, 10, 15, 20)
Student (x-axis: 1–16)

Legend: Pre-Assessment, Post-Assessment

Subgroup Pre and Post-Assessment Averages

Average Score (y-axis: 0, 5, 10, 15, 20)
Subgroups (x-axis: Below Level Reading IEP Students, All Other Students)

Legend: Pre-Assessment Average, Post-Assessment Average

B) Assessment Plan Table

Assessments	*TWS Objectives* (Use *TWS Objectives* identified in Factor 2.)	**Type of Assessment** (Include a brief description and criteria for *mastery*.)	*Adaptations*
1. *Pre-assessment*	All *TWS Objectives*	80% correct = mastery Multiple choice, and matching assessment	Extended time for IEP students
2. Formative Assessment	8 & 9	80% correct = mastery Multiple choice, fill in the blank quiz at the end of computer program used on Day 5	Extended time for IEP students
3. Formative Assessment	8 & 9	80% on rubric = mastery One page report/essay	Rubric adapted and extended time for IEP students. Option for oral report rather than written.
4. Formative Assessment (etc.)	2, 3, 8, 9	.80% correct = mastery Brain Food Review Game	No adaptations used

		80% = mastery Properties of Stars activity- graphing data, creating an HR diagram to show the lifecycle of stars	
5. Formative Assessment	4, 11		Extended time for IEP students
6. *Post-assessment*	All *TWS Objectives*	Same as pre-assessment.	Extended time for IEP students

C) Mastery learning table with this information:

MASTERY LEARNING TABLE

TWS Objectives	Percentage of Students Achieving Mastery on each TWS Objective	Average Percentage of Students Achieving Mastery for each Level of Objective	Number of Students Who Achieved Mastery with *Adaptations*
Low level objectives:			
TSW identify the visible and non-visible parts of the electromagnetic spectrum.	87%		2
TSW identify refracting, reflecting and invisible electromagnetic radiation detecting telescopes.	100%	XXXXX	2
TSW identify how astronomers determine the composition and temperature of stars.	100%		2
Low level Mastery Objective Index Sub-categories Score. (Average of percent of students achieving mastery of low *level objectives*.)	XXXXX	95.6	XXXXX
Middle level objectives:			
TSW explain how the Earth's rotation and revolution provide the basis for measuring time.	81%	XXXXX	2
TSW demonstrate/describe how the tilt of the Earth's axis and the Earth's movement cause seasons.	75%		1
Middle Level Mastery Objective Index Sub-categories Score. (Average of percent of students achieving mastery of *middle level objectives*.)	XXXXX	78%	XXXXX
High level objectives:			
TSW construct and use an HR Diagram to show the life cycle of stars.	68%	XXXXX	1
High Level Mastery Objective Index Sub-categories Score. (Average of percent of students achieving mastery of *high level objectives*.)	XXXXX	68%	XXXXX
Objective Mastery Index (Average of percentage of students achieving mastery using all *TWS Objectives*.)	85.2%	XXXXX	10

B) Table of learning gain scores and overall average gain

Gain Scores					
Student #	PRE score	Pretest %	POST score	Post Test &	Gain
1	7	35	18	90	0.85
2	4	20	17	85	0.81
3	2	10	20	100	1.00
4	3	15	12	60	0.53
5	5	25	14	70	0.60
6	6	30	11	55	0.36
7	2	10	13	65	0.61
8	5	25	16	80	0.73
9	3	15	7	35	0.24
10	6	30	13	65	0.50
11	2	10	15	75	0.72
12	4	20	17	85	0.81
13	3	15	13	65	0.59
14	9	45	17	85	0.73
15	5	25	16	80	0.73
16	2	10	12	60	0.56
total pts.	20		20		
				Gain:	64.77541

E) Describe subgroup performances on low, middle, and high level *TWS Objectives*. Provide the number in each subgroup.

TWS Objectives	Subgroup 1: Below Level Reading IEP Students (2 students)	Subgroup 2: All Other Students (14)
Low	2 out of 2 students mastered all low objectives	12 out of 14 students mastered all low objectives
Middle	1 out of 2 students mastered all medium objectives	10 out of 14 students mastered all medium objectives
High	1 out of 2 students mastered high objective	10 out of 14 students mastered high objective

If subgroup performances are different, explain why you think they are different.

- The two students in Subgroup 1 (Below Level Reading IEP Students) have a high

    attendance rate and receive adaptations to help them meet objectives.

- Subgroup 2 (All Other Students) as a whole has poor attendance. The lower level

    students in this subgroup who missed more than 2 or 3 days during the unit found it

    difficult to catch up and master objectives.

F)Explanation of how student progress was monitored by *pre-assessment* data and used appropriately in instruction and decision-making.

- Most students scored low on the pre-assessment, indicating very little prior knowledge. Instruction was adjusted so that extremely low level students would acquire the basic knowledge needed to be on level. Basic information was included in Power Point presentations to fill in knowledge gaps.

G)Explanation of how student progress is monitored by assessment data and used in instructional decision-making. Provide examples to illustrate.

- Overall, students performed poorly on the "Why is Time Different Around the World" activity. The next day, a review was included in the instruction to try to alert students to their misunderstandings. Students were then required to correct the assignment.

H) Explanation of how student progress is monitored by appropriate *post-assessment* data and is used appropriately in instructional decision-making or planning.

    Students made considerable gains in knowledge from the pre-assessment to the post-assessment. There were however, many students who did not master all objectives. After studying the post-assessment scores and comparing them to the objectives, it is obvious that remediation should take place. Part of the problem was due to absences and students not making up work. These students were required to attend after school science tutoring until work was made up and post-assessment was given again to assess mastery.

I)Explanation why you have chosen each assessment you used to measure your *TWS Objectives*.

- Pre/Post-assessment – multiple choice and matching (definitions) questions assess all TWS Objectives to quickly show if the student has mastered the objectives.

- Computer Program Quiz – multiple choice and fill in the blank quiz at the end of the computer program assesses the key information from the activity and corresponds to key concepts required for master of objectives 8 & 9.

- Writing activity/one page report – Students must have a good understanding of content to effectively describe/explain items on rubric. Also gives students practice researching and writing techniques.

- Brain Food Game – Entertaining game show format keeps student interest and brings out competitive nature. Review questions align with all objectives and provide a quick way of gauging student progress.

J) Justify your assessment adaptations

- Adaptations were made for students per individual IEP guidelines. The two students in Subgroup 1 (Below level reading IEP students) were given modified assessments, additional time, alternative setting and test reader options.

Factor 7. Reflection and Self Evaluation

A) Successful activities and assessments and plausible reasons for their success.

- Demonstration of spectrum analysis (day 1)- This activity is interesting and entertaining for students because it is basically a visual light show experience. Students seem to pay attention and remember important information because the activity was not "work".

- Brain Food Review Game (day 6 & 14) – Review game is successful in that it keeps students' attention while reviewing key concepts. Even if students did not answer questions correctly, they often remember the information after reasons are given (by the host) to support the answer.

Unsuccessful activities and assessments and plausible reasons for their lack of success.

- Writing assignment (day 5) –Most students needed more instruction on report/essay writing and how to conduct effective research. This assignment should follow a review of writing procedures and expectations. More in class researching and writing time might

also be needed to assess progress and avoid procrastination and rushed products.

- Properties of Stars activity (day 9 & 10)- Students had a difficult time constructing the HR diagram correctly and in a timely manner. It seemed students had only limited prior knowledge of graphs and how to graph data. This assignment also required patience and basic math skills which the students were not excited about.

B) Explanation of use of evidence and data to support conclusions that student learning was impacted, including description of any mid-unit adaptations. Explanation of two or more hypotheses for why some students did not meet subject matter goals.

- Student learning was impacted for the majority of students as indicated by the gain scores. Levels of improvement were varied, but all students showed at least some improvement.

- Students with frequent absences missed considerable amounts of lecture, notes and activities. These students fell behind quickly and generally did not master objectives.

- Some students refuse to participate and/or pay attention during class. These students often do not take notes or finish/turn in assignments. Little practice of material and often leads to non-mastery of objectives.

C) Three appropriate ideas for redesigning learning goals, instruction, or assessment and explanation of why these changes would improve student learning.

- Instruction should include more opportunities for formative assessments. This would have provided a more accurate level of student understanding. Instruction could be modified in a way that would lead to a higher percentage of objectives mastered.

- Writing Assignment – Provide a review and more detailed instructions/guidelines for the assignment. This may help lower students prepare a higher quality paper.

- Properties of Stars activity- Students had limited prior knowledge/understanding of graphs/how to graph data. Students needed a review of graphs (x & y axis, how to plot

data) to be included in instruction.

D) Explanation of specific details of interactions with all three types of individuals: students, parents and other professionals.

Interactions with students occurred on a daily basis during instruction (as a whole and individually), before/after class, in the hallway and after school (meetings and tutoring). Interactions with parents occurred via email (progress reports, medical updates) and during parent teacher conferences. Interactions with professionals took place daily as a part of cooperating teacher/student teacher meetings, department meetings, IEP meetings, staff meetings, in-service and casual conversation between classes and before/after school. Each of these interactions allow for a more personal relationship and understanding of the individual.

E) Explanation of the QPA/NCA school improvement process and the role of the teacher in it.

The QPA/NCA school improvement process is a method of assessing student knowledge/skills and improving students' performance. Need of improvement is based on results from standardized tests. Improvement goals are set and activities/procedures are implemented to guide students to the goals. Teachers are required to follow the outlined activities/procedures and impact the student learning.

F) Explanation of two professional development goals that clearly emerge from the insights and experiences described in this Factor and description of one activity to meet each goal.

- Increase knowledge of and ability to include high level objectives into instruction
  - Research high level objectives and activities to help students master this type of objectives.
- Increase knowledge/ repertoire of successful reading strategies
  - Research reading strategies
  - Attend seminar or in-service to gain knowledge on reading strategies

Chapter 26 and Chapter 30 Pre/Post Test

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

_____ 1. A telescope that uses a set of lenses to gather and focus light from distant objects is a
    a. reflecting telescope.   c. radio telescope.
    b. refracting telescope.   d. space telescope.

_____ 2. Which of the following has a visible wavelength?
    a. an infrared wave   c. a gamma ray
    b. an X ray   d. a violet wave

_____ 3. The event which began the universe was the
    a. Milky Way.   c. big bang.
    b. black hole.   d. electromagnetic spectrum.

_____ 4. The Coriolis effect provides evidence that
    a. Earth rotates on its axis.   c. The moon revolves around Earth.
    b. Earth revolves around the sun.   d. Earth has an elliptical orbit.

_____ 5. Different colors are the result of
    a. varying speeds different colors of light travel.
    b. varying wavelengths of different colors of light.
    c. varying temperatures of different colors of light.
    d. breaking light in a prism.

_____ 6. A star moving away from the Earth has a spectrum that is
    a. losing its color.   c. shifted toward red.
    b. shifted toward blue.   d. unchanged.

_____ 7. A small, hot, extremely dense core left after a star collapses is a
    a. red giant.   c. black dwarf.
    b. pulsar.   d. white dwarf.

_____ 8. During the main sequence stage, how is energy generated in a star's core?
    a. Hydrogen fuses into helium.   c. Helium fuses into hydrogen.
    b. Carbon fuses into hydrogen.   d. Carbon fuses into oxygen.

_____ 9. A large, bright star whose hot core has used most of its hydrogen is a
    a. nova.   c. giant.
    b. supernova.   d. pulsar.

_____ 10. What color are the hottest stars?
    a. red   c. white
    b. yellow   d. blue

_____ 11. Objects, such a stars, moving toward an observer
    a. do not display a color shift.
    b. display a blue shift.
    c. display a red shift.

d.   display an unpredictable color shirt.

____ 12.   What is apparent magnitude?
    a.   the brightness of a star as it appears from Earth
    b.   the true brightness of a star
    c.   the brightness of the moon as it appears from Earth
    d.   the numerical size of a star

____ 13.   A spiral galaxy has a nucleus of
    a.   dim stars, and spiral arms consisting of billions of young stars.
    b.   bright stars, and spiral arms consisting of billions of young stars.
    c.   bright stars, and spiral arms consisting of billions of old stars.
    d.   dim stars, and spiral arms consisting of billions of old stars.

Matching

Match each item with the correct statement below.
    a.   the spin of a body on its axis
    b.   the motion of a body around another body in space
    c.   the point in time when the sun appears to cross the celestial equator
    d.   part of the electromagnetic spectrum with waves longer than those of visible light
    e.   the day on which the sun is as far north or as far south of the equator as possible
    f.   the place in a planet's orbit where the planet is closest to the sun
    g.   visible light that has shortest wavelengths

____ 14.   ultraviolet radiation
____ 15.   rotation
____ 16.   solstice
____ 17.   revolution
____ 18.   infrared radiation
____ 19.   perihelion
____ 20.   equinox

Chapter 26 and Chapter 30 Pre/Post Test
Answer Section

MULTIPLE CHOICE

1.	ANS:	B
2.	ANS:	D
3.	ANS:	C
4.	ANS:	A
5.	ANS:	B
6.	ANS:	C
7.	ANS:	D
8.	ANS:	A
9.	ANS:	C
10.	ANS:	D
11.	ANS:	B
12.	ANS:	A
13.	ANS:	B

MATCHING

14.	ANS:	G
15.	ANS:	A
16.	ANS:	E
17.	ANS:	B
18.	ANS:	D
19.	ANS:	F
20.	ANS:	C