2012-2013
Alternative High School
Proficiency Examination in Science

Test Administration Manual
Parent & Student Guide

2012-2013

Nevada Department of Education

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Superintendent of Public Instruction

Office of Assessment, Program Accountability, and Curriculum

Nevada Alternative Science Assessment Website

http://nde.doe.nv.gov/Assessment_HSPE.htm

ADMINISTRATIVE GUIDELINES for the ALTERNATIVE SCIENCE ASSESSMENT

PURPOSE:
The Nevada Department of Education is required by state regulation to create an alternative science assessment for High School students failing the standard NHSPE science assessment. Students must meet certain eligibility requirements in order to elect to take the alternative assessment.

Participation in the Alternative Science Assessment does **NOT** automatically guarantee passage. The rigor demanded is equal for both the alternative and the standard assessment. School administrators and teachers should not consider this assessment opportunity easier than regular HSPE Science assessments. The Department of Education *strongly recommends* that students continue taking the traditional HSPE Science examination that is administered throughout the school year. Students are allowed to take advantage of the alternative Science assessment only ONCE during their senior year.

In order for students to exercise the option to attempt the Alternative Science Assessment they **must have failed the HSPE science assessment at least 2 times prior to their 12th grade year** and in addition they must meet the following eligibility criteria by the **end of the first semester of their current senior year.**

For the 2012-2013 academic year, in order for a student to exercise the option to attempt the Alternative Science Assessment they must:

- Have passed the HSPE reading and math assessments;
- Have an unweighted GPA of at least 2.75; and
- Have earned sufficient credits to be on schedule to graduate in the class of 2013.

A pupil, who meets the eligibility criteria above, may demonstrate proficiency in science by submitting to the Department of Education a portfolio of work prepared by the pupil. The regular HSPE science assessment is a measurement of a pupil's science knowledge and skills across the full range of the Nevada Science Standards: Physical Science, Life Science, Earth/Space Science and the Nature of Science. The portfolio of work submitted by the pupil to meet the alternative science assessment must also demonstrate the pupil's proficiency in the academic standards for science including life science, physical science, Earth Science, environmental science, and the nature of science.

The portfolio of work submitted by the pupil to demonstrate their proficiency in science must include:

1. *One complete experimental design; and*
2. *One work sample requiring analysis and interpretation of a data set***++***; and*

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3. *One additional work sample demonstrating the pupil's science content knowledge and abilities to use and apply basic and integrated science process skills, including, without limitation:*
    a. *science project or laboratory report based on student generated data; or*
    b. *completed science fair project, consolidated into one document; or*
    c. *any other sample of work demonstrating the pupil's science knowledge, abilities, and skills.*

++Data sets for analysis and interpretation will be developed by the Nevada Department of Education and made available by the school to all students choosing to attempt the Alternative Science Assessment.

SUBMISSION:

- Completed student packets must be submitted in the following order:
    - District Header Sheet
    - Checklist for the Alternative Science Proficiency Assessment
    - Student Information Form
    - Hand Bubbled 12th Grade HSPE Answer Document (same as 12th grade answer document used for the standard science assessment)
    - Science Submission Form for the Experimental Design
    - Completed Experimental Design
    - Science Submission form for the Data Analysis and Interpretation with Raw Data Set attached
    - Completed Data Analysis and Interpretation
    - Science Submission form for the Other Work Sample
    - Description of Other Work Sample being submitted
    - Completed Other Work Sample
- **<u>Incomplete packets will not be scored.</u>**

REQUIREMENTS

- A Science Submission Form with signed certifications is required to be completed for each work sample.
- Each completed student packet must be clipped together or placed in its own envelope/folder.
- The work submitted to be scored must be clean and free of all comments, grades, and corrections.
- No previously scored classroom work or tests will be accepted.
- **All work submitted becomes the property of the State and will not be returned.**
- **Please understand that failure to address <u>ALL of the submission requirements</u> will disqualify the submission meaning the submission <u>will not</u> be scored.**

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NON-PERMISSIBLE SUBMISSIONS:

- Worksheets
- Group work
- Research/ technical/informational pieces without citations
- Copied research/technical/informational text, e.g., job/program descriptions, with no accompanying student created work
- Work completed by someone other than the student submitting his/her work

WORK:

- Work must be completed by the student while enrolled in the current school district.
- Work must be certified by a teacher or other licensed personnel at the school where the pupil is enrolled.
- Work samples submitted must demonstrate science content knowledge across the full range of content contained in the standards. The intended content area must be indicated on the Science Submission form, for each work sample.
- Final submissions **must be** typed.
- **Please understand that failure to address ALL of the work requirements will disqualify the submission meaning the submission will not be scored.**

PERMISSIBLE ASSISTANCE:

- Please provide feedback to the student regarding whether or not all the submission requirements have been met. Please understand that failure to address **ALL of the submission requirements** will disqualify the student's submission and advise students accordingly.
- Provide only general suggestions, e.g., "Have you addressed all the areas identified in the scoring guides?", "Do your results help answer the original question?", "Your conclusions need to be supported by the data from your analysis or experiment", "The methods aren't specific enough."
- Provide only general guidance in the laboratory activity. Assistance should be limited to provision of laboratory equipment or calculators, required materials such as chemicals, and laboratory safety equipment.
- Encourage students to use the scoring guides and rubrics to insure that all required evidence and explanations are included in their responses.
- Encourage students to read the finished work to himself/herself or to another student out loud to aid in the revision and editing processes.

NON-PERMISSIBLE ASSISTANCE:

- Specific suggestions related to the design, organization, data collection, interpretation, or analysis in the experimental design.
- Specific suggestions related to tools or methods used for data analysis.

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- Specific guidance on possible questions related to data analysis, or related to interpretation of data related to original research question(s).
- Specific assistance in the use of laboratory equipment (not required for student safety).
- Writing or rewriting any portion of any of the work samples for the student.
- Any assistance by individuals (parents, siblings, friends) beyond that outlined under Permissible Assistance.

SCORING:

- Each work submission will be scored by two different readers. The two scores for the submission will be averaged to get a final score for each submission.
- The final score will be a combined total score (cumulative score) of the three submissions.
- Scorers must have extensive knowledge of high school curriculum and expectations.
- Scorers will be trained to evaluate the alternative assessment items.
- Submitted pieces will be scored using the rubric aligned with the type of submission indicated on the "Science Submission Form", i.e., a submission designated as experimental design will be scored as an experimental design. Submissions that do not represent the designated category may receive lower scores.
- The state reserves the right to submit papers to a plagiarism website, e.g., turnitin.com. If cheating has occurred, **the student automatically fails the alternative assessment**.

SUBMISSION DUE DATES:

All students wishing to attempt the ALTERNATIVE SCIENCE ASSESSMENT, for the 2012-2013 academic year, should consult their District Testing Calendar for the date by which all materials must be received.

Violation of State or District test security procedures is strictly prohibited by state law and is subject to prosecution pursuant to NRS 391.330.

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DISTRICT HEADER SHEET: ALTERNATIVE SCIENCE PROFICIENCY ASSESSMENT

To be completed by District Test Director

Student Name _____

School_____

District_____

Date_____

ELIGIBILITY CRITERIA

Student is a senior and credit ready to graduate. YES ☐ NO* ☐

Student has failed the standard science assessment 2 times. YES ☐ NO* ☐

Student has an unweighted GPA of at least 2.75 by the end of first semester of senior year. YES ☐ NO* ☐

Student has passed the reading **and** math portions of the proficiency exam by the end of first semester of his/her senior year. YES ☐ NO* ☐

(* Any NO answer disqualifies a student from participation in the alternate science assessment.)

The packet for each student includes:

____Checklist for the Alternative Science Proficiency Assessment**
____Student Information Form**
____Hand Bubbled 12th Grade HSPE Answer Document **
____Science Submission Form for the Experimental Design**
____Completed Experimental Design**
____Science Submission form for the Data Analysis and Interpretation with Raw Data Set attached**
____Completed Data Analysis and Interpretation**
____Science Submission form for the Other Work Sample**
____Description of Other Work Sample being submitted**
____Completed Other Work Sample**
____ All three content areas included in submission: **
  ____Physical Science
  ____Life Science
  ____Earth/Space Science

(Any omissions disqualify a student from participation in the alternate science assessment.)**

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CHECKLIST for the ALTERNATIVE SCIENCE PROFICIENCY ASSESSMENT
To be completed by School Site Administrator

Student Name _____ Date _____

School_____ District_____

ASSESSMENT CHECKLIST

Student Packet Order:
_____Student Information Form
_____Hand Bubbled 12th grade answer document (same as 12th grade answer document used for the standard HSPE science assessment)

FIRST PIECE- design for a scientific experiment
_____Work Sample Submission Form* *
_____Complete experimental design

SECOND PIECE-data analysis and interpretation
_____Work Sample Submission Form**
_____Raw Data set attached
_____Data analysis and interpretation

THIRD PIECE- other work sample
_____Work Sample Submission Form* *
_____Description of work being submitted
_____Clean final copy

*** Please circle the content area for each submission. All three content areas are required to be addressed. Any omissions or failure to address **EACH OF THE THREE** content areas will disqualify a student from participation in the alternate science assessment.

Work Sample	Content Area		
Exp Design	Physical Science	Life Science	Earth/Space Science
Data Analysis	Physical Science	Life Science	Earth/Space Science
Other	Physical Science	Life Science	Earth/Space Science

FORMS MUST BE COMPLETED WITH NO BLANKS OR N/A IN ORDER TO BE SCORED.

Violation of State or District test security procedures is strictly prohibited by state law and is subject to prosecution pursuant to NRS 391.330.

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Student Information Form

Student	Student ID	School / District

Teacher(s)/ Licensed Personnel

Eligibility Requirements Met?	2.75 GPA YES/ NO	Passed HSPE Reading & Math YES/NO
	Credit Sufficient YES/NO	Failed HSPE Science 2 times YES/NO

Sign-off Forms Completed?	☐ Yes	☐ No

With this signature, I confirm that the work in this student collection has been produced under the direction of faculty/staff in my building.

Signature of Principal: _____ *Date:* _____

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Science Submission Form: Experimental Design		
Student	Student ID	School / District
Submission Title:		
Type of Submission: Physical Science ____ Life Science _____ Earth/Space Science _____		
NOTE: All three content areas must be included within the completed submission. Failure to address EACH OF THE THREE content areas will disqualify a student from participation in the alternate science assessment.		
All materials submitted become property of the Nevada Department of Education, and will not be returned.		

STUDENT

Name: _____

- I affirm that this is my original work.
- I affirm that this is a completed submission.
- I affirm that all three content areas are included within this submission.
- I understand that failure to address **ALL of the submission requirements** will disqualify my submission.

Signature: _____

TEACHER/ LICENSED PERSONNEL

Name: _____

- I affirm that this is the student's original work and this submission is complete.
- I affirm that all three content areas are included within this submission.
- I affirm that all the submission requirements have been met.
- I understand that failure to address **ALL of the submission requirements** will disqualify this student's submission.

Signature: _____

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Science Submission Form: Data Analysis and Interpretation		
Student	Student ID	School / District
Submission Title:		
Type of Submission: Physical Science ____ Life Science _____ Earth/Space Science _____		
NOTE: All three content areas must be included within the completed submission. Failure to address <u>EACH OF THE THREE</u> content areas will disqualify a student from participation in the alternate science assessment.		
Data set attached ☐ YES (required)		
All materials submitted become property of the Nevada Department of Education, and will not be returned.		

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STUDENT

Name: _____

- I affirm that this is my original work.
- I affirm that this is a completed submission.
- I affirm that all three content areas are included within this submission.
- I understand that failure to address **ALL of the submission requirements** will disqualify my submission.

Signature: _____

TEACHER/ LICENSED PERSONNEL

Name: _____

- I affirm that this is the student's original work and this submission is complete.
- I affirm that all three content areas are included within this submission.
- I affirm that all the submission requirements have been met.
- I understand that failure to address **ALL of the submission requirements** will disqualify this student's submission.

Signature: _____

Science Submission Form: Other Work Sample		
Student	Student ID	School / District
Submission Title:		
Description of Other Work Sample: ___ Project Report ___ Science Fair Project ____ Research Paper ___ Experimental Design ___ Data Analysis & Interpretation _____ Other _____		
Type of Submission: Physical Science ____ Life Science _____ Earth/Space Science _____		
NOTE: All three content areas must be included within the completed submission. Failure to address EACH OF THE THREE content areas will disqualify a student from participation in the alternate science assessment.		
All materials submitted become property of the Nevada Department of Education, and will not be returned.		

STUDENT

Name: _____

- I affirm that this is my original work.
- I affirm that this is a completed submission.
- I affirm that all three content areas are included within this submission.
- I understand that failure to address **ALL of the submission requirements** will disqualify my submission.

Signature: _____

TEACHER/ LICENSED PERSONNEL

Name: _____

- I affirm that this is the student's original work and this submission is complete.
- I affirm that all three content areas are included within this submission.
- I affirm that all the submission requirements have been met.
- I understand that failure to address **ALL of the submission requirements** will disqualify this student's submission.

Signature: _____

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Alternative HSPE Science Assessment: Guidelines for Experimental Design
(rubric is on the pages that follow)

******Although not an absolute requirement, students are strongly encouraged to submit an experimental design for an investigation that they have personally designed, planned, and conducted. ******

Below are the areas to address in each section of the experimental design. Please respond in paragraph form.

1) Introduction (100 points)

- What was your research question?
- What background information did you use or need to design your investigation?
- What was your hypothesis?
- How did you formulate your hypothesis?
- Do you believe your hypothesis is accurate? Why or why not?

2) Methods (100 points)

- What did you do to test your hypothesis to address your original question?
- What were the variables of your experiment (dependent and independent)?
- Which variable(s) are you manipulating? What was the reasoning that led to your choice(s)?
- What exactly did you (will you) measure or count? What comparison(s) are you making?
- How did you (will you) make measurements? Describe any appropriate statistical tests you would use to test your hypothesis.

3) Results (80 points)

- Provide a written narrative describing your results.
- Represent your collected data using appropriate graphs, tables, charts, etc.

4) Discussion (80 points)

- Based upon the data you collected during your investigation, what claim(s) were you able to make to address your research question?
- Does your data support your claims? Why or why not?
- Did you accept or reject your initial hypothesis? Why?
- How did your results fit with what you already knew, or have learned from other sources?
- Would you make the same hypothesis again, given the same set of circumstances? Why or why not?
- If you were able to repeat this experiment, what changes would you make to address possible sources of error that may have affected your results?
- Do you believe you would be able to replicate your results, given the same set of circumstances? Why or why not?
- How could your experiment be important in the application of this information to real world problems?

5) References (40 points)

- Quality of cited references using approved APA or MLA format
- Amount of cited references using approved APA or MLA format (see rubric for scale)

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	(ALTERNATIVE HSPE SCIENCE EXPERIMENTAL DESIGN RUBRIC)			
TITLE:				
INTRODUCTION – 100 points	Complete and relevant to topic: 15-20 points	Mostly complete and related to topic: 6-14 points	Incomplete or not relevant to topic: 1-6 points	Not relevant or no attempt: No points
What is your research question?				
What background information did you have (would you need) to design the investigation?				
What was your hypothesis?				
How did you formulate your hypothesis?				
Do you believe your hypothesis is accurate? Why or why not?				
Methods - 100 points	Complete and relevant to topic: 15-20 points	Mostly complete and related to topic: 6-14 points	Incomplete or not relevant to topic: 1-6 points	Not relevant or no attempt: No points
What did you do to test your hypothesis: to answer your original question?				
What are the variables of your experiment (dependent and independent)?				
Which variable(s) are you manipulating? What was the reasoning that led to your choice(s)?				

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What exactly did you (will you) measure or count? What comparison(s) are you making?				
How did you (will you) make measurements? Describe any appropriate statistical tests you would use to test your hypothesis.				
Results -- 80 points	Complete and relevant to topic: 30-40 points	Mostly complete and related to topic: 16-29 points	Incomplete or not relevant to topic:1-15 points	Not relevant or no attempt: No points
Provide a narrative of your results.				
Represent your collected data using appropriate graphs, tables, charts, etc.				
Discussion -- 80 points	Complete and relevant to topic: 8-10 points	Mostly complete and related to topic: 6-8 points	Incomplete or not relevant to topic: 1-5 points	Not relevant or no attempt: No points
Based upon the data you collected during your investigation, what claim(s) were you able to make to address your research question?				
Does your data support your claims? Why or why not?				
Did you accept or reject your initial hypothesis? Why?				
How did your results fit with what you already knew, or have learned from other sources?				

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Would you make the same hypothesis again, given the same set of circumstances? Why or why not?				
If you were able to repeat this experiment, what changes would you make to address possible sources of error that may have affected your results?				
Do you believe you would be able to replicate your results, given the same set of circumstances? Why or why not?				
How could your experiment be important in the application of this information to real world problems?				
References -- 40 points	Complete and relevant to topic: 15-20 points	Mostly complete and related to topic: 6-14 points	Incomplete or not relevant to topic:1-6 points	Not relevant or no attempt: No points
Quality of cited references using approved APA or MLA format				
Amount of cited references using approved APA or MLA format	(4 references or more)	(3 references)	(1-2 references)	(no references)

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Guidelines for Data Analysis & Interpretation

Data sets for analysis and interpretation will be developed by the Nevada Department of Education and made available by the school to all students choosing to attempt the Alternative Science Assessment. Do not use any other data.

Items to be addressed for this submission:

Preparation (50 points)

1. Describe the data set (qualitative and quantitative description). Should be written in a paragraph.
2. What research question(s) are being investigated in the analysis?
3. What analysis is planned?
4. How will the results of the analysis be presented
5. What if any quantitative analysis will be used in the analysis?

Data Analysis (50 points)

1. How did you analyze the data? **Show your work and explain your process.**
2. What are the results/outputs of your analysis?
    a. Graphs, tables, charts
    b. Written description of your results

Interpretation (50 points)

1. What is the answer to your research question(s)?
2. How sure are you of your answer? (is it supported statistically?)**Explain**
3. What could you do to increase your confidence in the answer?
4. Explain how the data set could be used to investigate other research questions?
5. How do the results of your analysis add to your understanding of real world problems in the content area?

Content Question (50 points)

Provide an explanation regarding how the results of your analysis add to your overall understanding of the content area addressed by the data set.

Total _____/ 200

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RUBRIC FOR DATA ANALYSIS AND INTERPRETATION

Topic	Complete and relevant to topic	Mostly complete and related to topic	Incomplete and/or not relevant to topic	Not relevant or no attempt
PREPARATION – 50 POINTS				
Description of data set	8-10	4-7	1-3	0
Research question(s)	8-10	4-7	1-3	0
What analysis is planned	8-10	4-7	1-3	0
How will results be presented	8-10	4-7	1-3	0
What quantitative analysis will be used?	8-10	4-7	1-3	0
DATA ANALYSIS -50 POINTS				
How did you analyze the data?	20-25	11-19	1-10	0
Graphs, charts, tables	8-10	4-7	1-3	0
Written results	12-15	7-11	1-6	0
INTERPRETATION-50 POINTS				
What is the answer to your question/ hypothesis?	8-10	4-7	1-3	0
How sure are you of the results?	8-10	4-7	1-3	0
How could you increase your confidence in the answer?	8-10	4-7	1-3	0
How could the data set be used for different analyses?	8-10	4-7	1-3	0
How do your results add to your understanding of the content area?	8-10	4-7	1-3	0

ANSWER TO THE CONTENT QUESTION _____ (50 POINTS)

Total _____/ 200

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Alternative HSPE Science Assessment

Guidelines for "Other work sample": After you select an "Other work sample" for submission, you must explain why the sample demonstrates proficiency in science by addressing the items below. Be sure to include your "other work sample" and a section that addresses each of the items below in your submission.

Items to be addressed for this work sample:

1. Describe the work sample (e.g., project report, experimental design, research paper, etc.)***** Include the work sample in the packet.**
2. What content strand does this work sample address: Earth/Space Science, Life Science, or Physical Science?
3. What is the scientific (research) question that is being addressed in the work sample?
4. What methods did you use?
5. How did you collect your data?
6. How were the data analyzed?
7. What are your results?
8. How do the results help you support or reject your answer to the research question?
9. How do your results add to your understanding of this content area?
10. How did you decide on the format for presentation?
11. How does the work presented in this sample demonstrate your proficiency in science content knowledge and science process skills?

Total = 200 points

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Explanation of Other Science Work Sample

Student:	
Teacher:	Course:
Brief explanation of specific science task.	

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Nevada Alternative HSPE Science Assessment
Other work sample Scoring Rubric

Category – Total Points	Scoring Criteria	Complete and clearly related to topic	Mostly complete and at least partly related to topic	Incomplete and/or only marginally related to topic	Incomplete, unrelated, or no attempt
Description 10 points	Section includes adequate description of work sample	8-10	5-8	2-4	0-1
Content Strand 5 points	Content strand addressed by work sample clearly identified	5	3-4	1-2	0
Research Question 40 points	Work sample provides a clear description of the purpose, scientific question, or research question addressed.	30-40	16-30	4-15	0-3
Methods 80 points	Methods used to conduct the work are clearly presented in student's own words (not cut & paste)	30-40	16-30	4-15	0-3
	Methods for data collection are clear	11-15	6-10	2-5	0-1
	Methods for data analysis are clearly defined	11-15	6-10	2-5	0-1
	Reference to scientific literature	8-10	5-8	2-4	0-1
Results 40 points	Results of the student's work are clearly identified and described.	15-20	8-19	2-7	0-1
	Discussion of how results support answer to research question	15-20	8-19	2-7	0-1
Format 5 points	Work sample provides a clear statement regarding the selection of the format for presentation	5	3-4	1-2	0-1
Reflection 20 points	Work sample provides a description in student's words regarding how the selected work sample demonstrates proficiency in the selected content area	15-20	8-19	2-7	0-1
Score					

Total points _____/ 200

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