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Alaska Science Assessment Blueprint*

The high-level blueprint for the Alaska Science Assessments includes overall designs for each grade level test, reporting categories, number of items, number of points in each category, and the estimated testing time by grade level in the charts below.

*Table 1. Operational Science Design and Blueprint*

|  |  |  |
| --- | --- | --- |
| **Grade Level** | **Number of Multiple-Choice, Multi-Select, and Technology-Enhanced Items** | **Total Possible Points** |
| 5 | 40 | 40 |
| 8 | 40 | 40 |
| 10 | 40 | 40 |

*Calculator Use by Grade Level*

According to the *K–12 Science Standards for Alaska*, adopted in 2019, students are expected to use mathematics skills to represent physical variables and their relationships, and to make quantitative predictions. Mathematics is a tool that is key to understanding science, and classroom instruction should enhance all of science through the use of quality mathematical and computational thinking. Therefore, specific types of calculators are allowable on the Alaska Science Assessment according to the grade-level chart below.

Additional information about the use of calculators can be found in the Calculator Policy on the [Alaska Science Assessment Test Administration webpage](https://education.alaska.gov/assessments/science/test-administration).

*Table 2. Calculator Use by Grade Level and Test Part*

|  |  |
| --- | --- |
| **Grade Level** | **All Parts** |
| 5 | Basic Calculators Allowed |
| 8 | Basic Calculators Allowed |
| 10 | Basic and Scientific Calculators Allowed |

*Science Reporting Categories*

Alaska’s standards define what a student should know and be able to do. The standards are organized in groups of similar standards. Alaska Science Assessment items assess student skills on reporting categories that correspond to a group of standards. The science reporting categories were determined in consultation with Alaska educators during the standards adoption process. Tables 3-5 show possible points for each grade level as well as a breakdown of the domain into the number of questions associated with each specific strand.

*Table 3. Grade 5 Science Reporting Categories*

|  |  |  |  |
| --- | --- | --- | --- |
| **Points by Domain and Strand** | | | |
| **Domain** | **Strand** | **Target Number of Points** | **Percent of Total** |
| **Physical Science** | Structure and Properties of Matter | 2-4 | 5-10% |
| Forces and Interactions | 3-5 | 8-13% |
| Energy and Waves | 5-7 | 13-18% |
| **Total PS** | **12-14** | **30-35%** |
| **Life Science** | Structure, Function, and Information Processing | 2-4 | 5-10% |
| Matter and Energy in Organisms and Ecosystems and Interdependent Relationships in Ecosystems | 5-7 | 13-18% |
| Inheritance and Variation of Traits: Life Cycles and Traits | 3-5 | 8-13% |
| **Total LS** | **12-14** | **30-35%** |
| **Earth and Space Science** | Space Systems | 2-4 | 5-10% |
| Earth's Systems | 6-8 | 15-20% |
| Weather and Climate | 2-4 | 5-10% |
| **Total ESS** | **12-14** | **30-35%** |
| **Grand Total** | | **40** | **100%** |

*Table 4. Grade 8 Science Reporting Categories*

|  |  |  |  |
| --- | --- | --- | --- |
| **Points by Domain and Strand** | | | |
| **Domain** | **Strand** | **Target Number of Points** | **Percent of Total** |
| **Physical Science** | Structure and Properties of Matter and Chemical Reactions | 3-5 | 7-12% |
| Forces and Interactions | 3-5 | 7-12% |
| Energy and Waves and Electromagnetic Radiation | 3-5 | 7-12% |
| **Total PS** | **12-14** | **30-35%** |
| **Life Science** | Structure, Function, and Information Processing | 2-4 | 5-10% |
| Matter and Energy in Organisms and Ecosystems and Interdependent Relationships in Ecosystems | 3-5 | 7-12% |
| Growth, Development, and Reproduction of Organisms and Natural Selection and Adaptations | 6-8 | 15-20% |
| **Total LS** | **12-14** | **30-35%** |
| **Earth and Space Science** | Space Systems | 2-4 | 5-10% |
| History of Earth and Earth's Systems | 4-6 | 10-15% |
| Weather and Climate and Human Impacts | 5-7 | 12-18% |
| **Total ESS** | **12-14** | **30-35%** |
| **Grand Total** | | **40** | **100%** |

*Table 5. Grade 10 Science Reporting Categories*

|  |  |  |  |
| --- | --- | --- | --- |
| ***Points by Domain and Strand*** | | | |
| ***Domain*** | ***Strand*** | ***Target Number of Points*** | ***Percent of Total*** |
| ***Physical Science*** | Structure and Properties of Matter and Chemical Reactions | *5-7* | *13-17%* |
| Forces and Interactions | *4-6* | *8-15%* |
| Energy and Waves and Electromagnetic Radiation | *7-9* | *17-23%* |
| ***Total PS*** | ***20*** | ***50%*** |
| ***Life Science*** | Structure, Function, and Information Processing and Processes | *2-4* | *5-10%* |
| Matter and Energy in Organisms and Ecosystems and Interdependent Relationships in Ecosystems | *8-10* | *20-25%* |
| Inheritance and Variation of Traits and Natural Selection and Evolution | *6-8* | *15-20%* |
| ***Total LS*** | ***20*** | ***50%*** |
| ***Grand Total*** | | ***40*** | ***100%*** |

*Grade 10 students taking the Alaska Science Assessment have access to a periodic table within the assessment platform.  This table can also be provided in print form and can be found on the* [*Alaska Science Assessment Test Administration webpage*](https://education.alaska.gov/assessments/science/test-administration)*.*

*Science Estimated Test Times*

The estimated test times in the following tables are approximate and do not include time needed to start computers, log in students, hand out test materials, and read test directions.

*Table 6. Estimated Test Time for Science by Test Part*

|  |  |
| --- | --- |
| **Test** | **Estimated Time Per Part** |
| Grade 5 Part 1 | 40 Minutes |
| Grade 5 Part 2 | 40 Minutes |
| Grade 5 Part 3 | 40 Minutes |
| Grade 8 Part 1 | 40 Minutes |
| Grade 8 Part 2 | 40 Minutes |
| Grade 8 Part 3 | 40 Minutes |
| Grade 10 Part 1 | 40 Minutes |
| Grade 10 Part 2 | 40 Minutes |
| Grade 10 Part 3 | 40 Minutes |

*Table 7. Estimated Test Time for Science*

|  |  |
| --- | --- |
| **Grade Level** | **Estimated Total Test Time** |
| Grade 5 | 120 Minutes |
| Grade 8 | 120 Minutes |
| Grade 10 | 120 Minutes |