Grade 6

Blackline Masters

- Wing Shapes (BLM 6-A)
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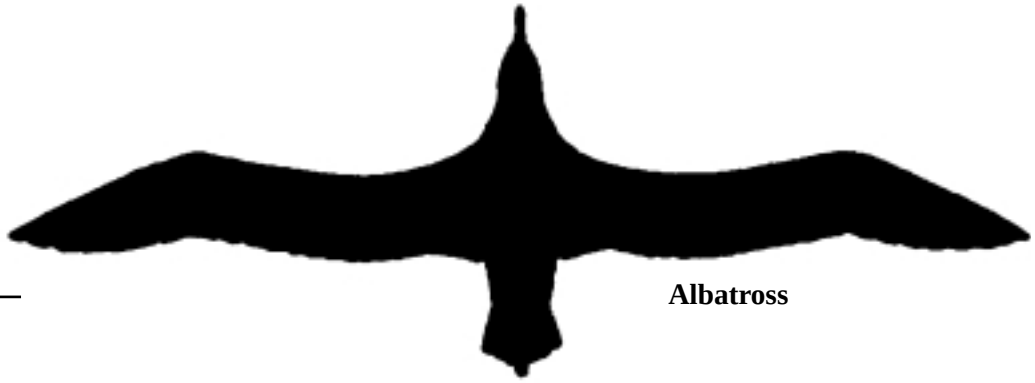
Wing Shapes

Match-up each description with the appropriate wing shape of the following birds. Write the name of each bird in the space provided.

a. short wings, allowing quick acceleration over a short distance

_____



Albatross

b. long, slender, powerful wings for flying in strong winds on the open ocean

_____

Condor

c. long, broad, flat wings soar at great heights and make powerful dives

_____

Swift

d. small, stiff, narrow wings, which are like helicopter rotors for excellent control

_____

Quail

e. long, slender wings, for fast flight

_____

Hummingbird

Changing Conceptions of the Earth and Its Position in Space

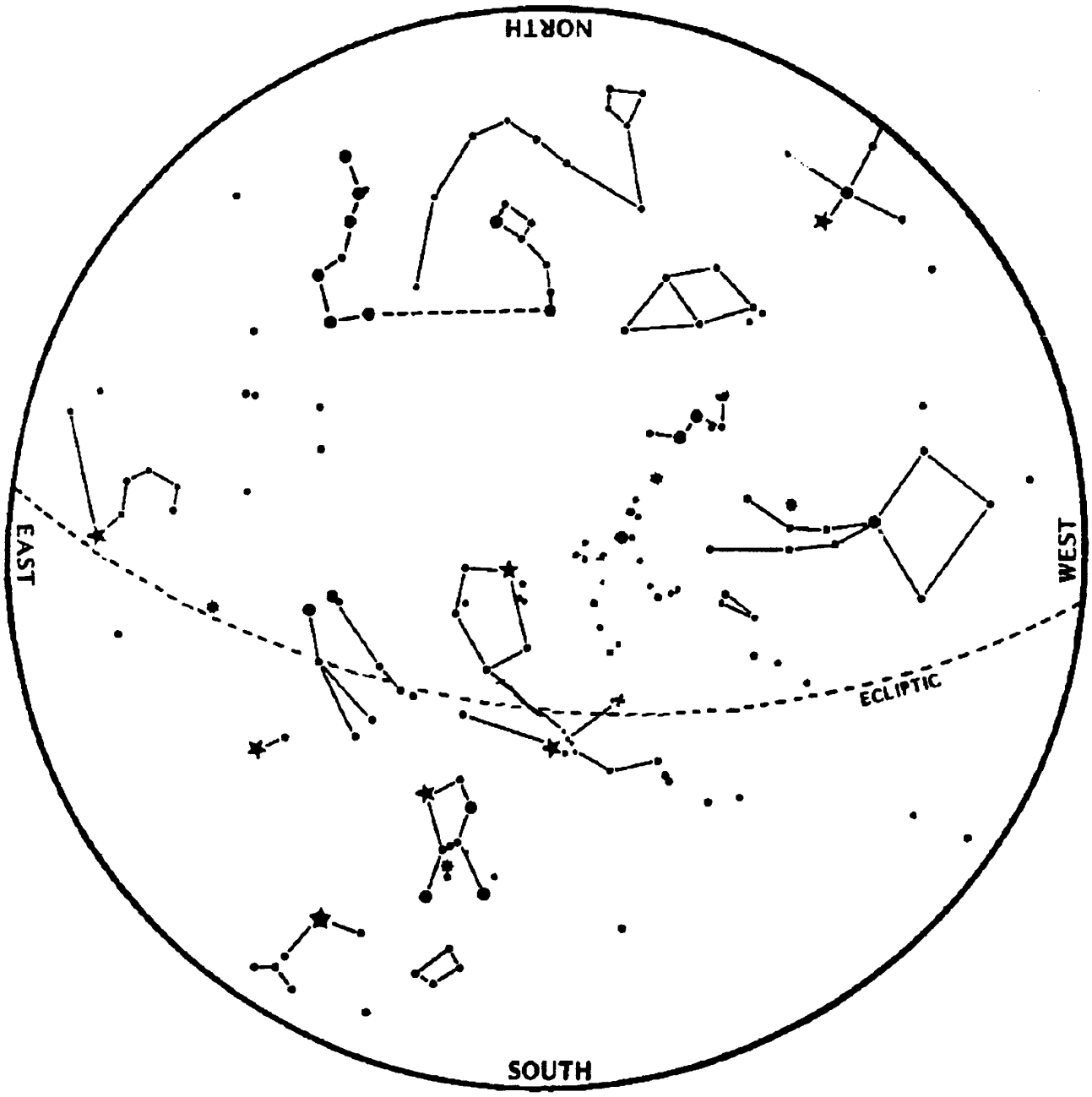
1. In 530 B.C. while teaching in southern Italy, Pythagoras, a Greek mathematician, suggested the idea of the spherical Earth. He got his idea from watching ships sail out to sea. He observed that as ships moved further from shore, they became smaller and smaller until they eventually disappeared from sight, first the hull and then the mast. Pythagoras realized that if the Earth was flat, then the whole boat would disappear at once. He surmised that if the Sun and moon are spherical, then the Earth must be too.

2. In Athens, Greece, around 450 B.C., Greek philosopher Anaxagoras thought that the Earth was a sphere. He also thought that the moon shone because of reflected light from the Sun. He enjoyed watching the moon. He concluded that eclipses occur when the Earth moves between the Sun and the moon. He saw that the dark area on the moon was curved and realized that, since it was the Earth's shadow, the Earth must be curved as well.

3. Around 225 B.C., Greek astronomer Eratosthenes was a librarian in Alexandria, Egypt. He was inspired by a book stating that in southern Egypt at noon on the longest day of the year when the Sun was at the highest point in the sky a vertical stick did not cast a shadow. Eratosthenes thought that if the Earth was flat, then he too should not get a shadow at that time in northern Egypt. He tried the same thing, and there was a shadow. He inferred that the Earth must be round because the Sun created a noon shadow at one location but not at another.

4. In 1543, Polish astronomer Copernicus suggested that the Earth spins around an axis like a top and also revolves around the Sun once a year. The church at the time rejected his theory and threw him into prison. His theory eventually was proven to be true.

Star Map



Star Map: Reproduced from *Native Studies: Middle Years (Grades 5 to 8): A Teacher's Resource Book*. Winnipeg, MB: Manitoba Education and Training, 1997. p. 3.18.

Constructing a Prototype: Observation Checklist

Date: _____ Problem/Challenge: _____

A group of students can be selected as a focus for observation on a given day, and/or one or more of the observational areas can be selected as a focus. The emphasis should be on gathering cumulative information over a period of time.

Names	Has Safe Work Habits (ensures personal safety and safety of others)	Works with Group Members to Carry Out Plan	Participates in Analysis and Modification of Prototype	Shows Evidence of Perseverance and/or Confidence	Comments
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					

(continued)

Constructing a Prototype: Observation Checklist *(continued)*

Names	Has Safe Work Habits (ensures personal safety and safety of others)	Works with Group Members to Carry Out Plan	Participates in Analysis and Modification of Prototype	Shows Evidence of Perseverance and/or Confidence	Comments
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					
31.					
32.					
33.					

Notes:

Design Project Report

Name: _____ Date: _____

Problem/Design Challenge:

Criteria:

Brainstorming (What are all the different ways . . .):

Planning:

Steps to Follow:

Materials:

Safety Considerations:

.

(continued)

Design Project Report *(continued)*

Testing:

Criteria	Test Used

Test Results: Attach Data Summary

Evaluating and Improving:

- Justification of changes to original design:

- Strengths and weaknesses of final design:

- Comment/reflection (Next time . . . , A new problem . . . .):

(continued)

Design Project Report *(continued)*

Prototype Sketch 1 (Plan):

Top View

Side View

Prototype Sketch 2 (Final):

Top View

Side View

Design Project Report: Assessment

Prototype: _____ Date: _____

Team Members: _____

Criteria	Possible Points*	Self-Assessment	Teacher Assessment
Identifying the Practical Problem and Criteria for Success • the problem is clearly stated • class and/or group criteria are identified • criteria address all or some of the following: function, aesthetics, environmental considerations, cost, reliability			
Planning • all steps are included and clearly described in a logical sequence • all required materials/tools are identified • safety considerations are addressed • a labelled top- and side-view sketch of the prototype is included (Sketch 1)			
Testing the Prototype • tests are described and align with criteria (e.g., each criterion has been tested) • test results are presented in an appropriate format (data sheet is attached)			
Evaluating and Improving the Design • a final sketch of the prototype is included (Sketch 2) • changes to the original plan are justified • strengths and weaknesses of the final prototype are presented • suggestions for “next time” are included and/or “new problems” are identified			
Total Points			
Comments:			

*__Note:__ The teacher and/or the class assigns possible points to reflect the particular emphasis/es of the project.

Conducting a Fair Test: Observation Checklist

Experiment: _____ Date: _____

A group of students can be selected as a focus for observation on a given day, and/or one or more of the observational areas can be selected as a focus. The emphasis should be on gathering cumulative information over a period of time.

Names	Has Safe Work Habits (workspace, handling equipment)	Ensures Accuracy/ Reliability (e.g., repeats measurements)	Works with Group Members to Carry Out Plan	Shows Evidence of Perseverance and/or Confidence	Comments
1.					
2.					
3.					
4.					
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6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					

(continued)

Conducting a Fair Test: Observation Checklist *(continued)*

Names	Has Safe Work Habits (workspace, handling equipment)	Ensures Accuracy/ Reliability (e.g., repeats measurements)	Works with Group Members to Carry Out Plan	Shows Evidence of Perseverance and/or Confidence	Comments
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					
31.					
32.					
33.					

Notes:

Experiment Report

Name: _____ Date: _____

Experiment: _____

Question:

Prediction/Hypothesis: (Identify a cause and effect relationship.)

Planning for a Fair Test

- **Apparatus/Materials:**
- **Variables to Hold Constant:**
- **Method:** (Include steps to follow and safety considerations.)

(continued)

Experiment Report *(continued)*

Observations:

Analysis of Data: (Identify patterns and discrepancies.)

Note: Attach graph on a separate page, if required.

(continued)

Experiment Report *(continued)*

Strengths and Weaknesses of Approach: (State what went well and what needs to be done differently next time.)

Conclusion: (Support or reject prediction/hypothesis; pose new question(s).)

Applications/Implications: (Link to daily life or area of study.)

Experiment Report: Assessment

Experiment Title: _____ Date: _____

Team Members: _____

Criteria	Possible Points*	Self-Assessment	Teacher Assessment
Making a Prediction/Hypothesis • the prediction/hypothesis clearly identifies a cause and effect relationship			
Planning for a Fair Test • required apparatus/materials are identified • major variables to hold constant are identified • steps to follow are included • safety considerations are addressed			
Conducting a Fair Test/Making and Recording Observations • detailed data are recorded, appropriate units are used • data are recorded in a clear/well-structured/appropriate format			
Analyzing and Interpreting • graphs are included (where appropriate) • patterns/trends/discrepancies are identified • strengths and weaknesses of approach are identified			
Drawing a Conclusion • prediction/hypothesis is supported or rejected • new question(s) are identified			
Making Connections • potential applications to or implications for daily life are identified and/or links to area of study are made			
Total Points			
Comments:			

*__Note:__ The teacher and/or the class assigns possible points to reflect the particular emphasis/es of the experiment.