APPENDIX 3: FAIRNESS IN TESTING MANUAL

Fairness in Testing

Manual for Issues of Bias, Fairness, and Sensitivity

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Introduction

The most important part of the development of any new test is to ensure balanced treatment and control of potential bias, stereotyping, and insensitivity in the items or in the test-related materials. Data Recognition Corporation (DRC) understands that the presence of any type of bias in a test is undesirable not only from a civil rights point of view, but also from a measurement point of view. Issues of bias, fairness, and sensitivity in testing can have a direct impact on test scores. Our test developers are committed to the development of items and tests that are fair for all students. At every stage of the item and test development process, we employ procedures that are designed to ensure that our items and tests meet Standard 7.4 of the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999).

> Standard 7.4: Test developers should strive to identify and eliminate language, symbols, words, phrases, and content that are generally regarded as offensive by members of racial, ethnic, gender, or other groups, except when judged to be necessary for adequate representation of the domain.

In meeting Standard 7.4, DRC employs a series of internal quality steps that we believe are among some of the best in the industry. We provide specific training for our test developers, item writers, and reviewers on how to write, review, revise, and edit items for issues of bias, fairness, and sensitivity, as well as for technical quality. Our training also includes an awareness of and sensitivity to issues of cultural diversity.

In addition to providing *internal* training in reviewing items in order to eliminate potential bias, we also provide *external* training to our clients, including state departments of education, review panels of minority experts, teachers, and other stakeholders. DRC understands the importance of having external panels with a wide variety of expertise in reviewing items and tests for potential bias. External panels of professionals provide a review of items for subtle forms of bias that often can be perceived only by individuals who possess a wide variety of appropriate expertise and represent specific constituencies.

This manual has been prepared to summarize DRC's guidelines for bias, fairness, and sensitivity, including how to eliminate language, symbols, words, phrases, and content that might be considered offensive by members of racial, ethnic, gender, or other groups. Our guidelines may be modified to meet clients' requirements and/or state-specific guidelines.

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Definition of Bias

While there are many definitions of bias, the following definition is provided on page 76 of the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999):

> The term *bias* in tests and testing refers to construct-irrelevant components that result in systematically lower or higher scores for identifiable groups of examinees. In other words, **bias is the presence of some characteristic of an item and/or test that results in two individuals of the same ability but from different subgroups performing differently on the item and/or test.** Therefore, it is most important that there are no ambiguities in the test items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries.

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Types of Bias

There are many types of bias. They include stereotyping and discriminating against people because of gender, regional or geographical differences, ethnicity or culture, socioeconomic or class status, religion, or age, as well as bias against other groups of people, including those with disabilities. Another form of bias involves the use of questions and/or activities in the items or on a test as a whole that are not relevant to the life experiences of the students responding to the items or test. A definition of each type of bias, along with samples, is provided below.

Stereotyping

"Stereotype is an image formed by ascribing certain characteristics (e.g., physical, cultural, personal, occupational, historical) to all members of a group" (National Evaluation Systems, Inc. page 2). Stereotyping in test items and tests might include physical characteristics, intellectual characteristics, emotions, careers, activities, and domestic or social roles. In writing or reviewing test items, it is very important that all groups are portrayed fairly, without stereotyping. As a result, there should be a range of characteristics, careers, and social roles across all groups, and no one group should be characterized by any one particular attribute or characteristic. Following are examples of stereotyping.

Stereotype	***Examples***
Physical characteristics	Males are strong and capable leaders. Females are weak. The elderly are feeble and sickly. Children are healthy and full of energy. The elderly are dependent upon others. People with disabilities are dependent upon others. Females worry about their hair.
Intellectual characteristics	Males do better in mathematics and science. Females do better in reading and language arts. Asian Americans excel in academics.
Emotions	Males are aggressive, courageous, and strong. Females are weak, weepy, tender, and fearful.

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Types of Bias
Stereotyping (continued)

Stereotyping	*Examples*
Careers	Females are nurses, teachers, and secretaries. Males are doctors, principals, superintendents, lawyers, and skilled laborers (e.g., plumbers, construction workers, painters). African Americans are athletes. Hispanics operate lawn care businesses. Asian Americans own dry cleaning businesses.
Activities	Females play with dolls and read books. Females do domestic chores (e.g., clean house, cook, sew). Females spend money. Males play sports and work with tools. Boys are rowdy. Girls are quiet.
Domestic and/or Social Roles	Females are responsible for childcare. Men work outside of the home and are the breadwinners.
Community	Asian Americans live in ethnic neighborhoods. African Americans live in high-rise apartment buildings located in urban areas. American Indians live on reservations.
Leadership	Men are leaders and rulers. Women are followers. Women are dependent on men. Men are elected to political positions. Females in leadership roles are aggressive and pushy.

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Gender Bias

Gender bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that show members of either sex in stereotypical activities, emotions, occupations, characteristics, and/or situations. Gender bias also involves the use of demeaning labels.

Examples of gender bias

Titles and specific terms referring to humanity at large, such as

- Mankind
- Manhood
- Manpower
- Man of the hour
- Man-hours
- Man-made

Use of gender specific terms for occupations, such as

- Fireman
- Workman
- Chairman
- Policeman
- Mailman
- Salesman
- Insurance man
- Businessman
- Congressman

Use of pronouns that imply a stereotype, such as

- The nurse went to the hospital, and *she* was able to talk with the patient.
- The factory worker needed to earn more money for *his* family.
- When the lawyer delivered *his* closing remarks, the jury listened carefully.
- A politician must give a lot of speeches when *he* runs for office.

Use of phrases that identify genders in terms of their roles or occupations, such as

- Men and girls were invited to the lecture.
- The travelers took their wives and children with them.
- The happy couple was introduced as man and wife.

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Types of Bias
Gender Bias (continued)

Use of phrases or words with an emphasis on marital status, such as

- Abraham Lincoln and Mrs. Lincoln attended the play.
- George Washington and Martha visited the new building.
- Dr. and Mrs. Jones attended the opening of the new warehouse.
- The admirable Dr. George Halstead and his wife, Maria, visited the library.

Use of words that identify genders in the salutation of a business letter, such as

- Dear Sir:
- Dear Madam:
- Dear Gentlemen:

Use of words or phases that are not parallel, such as

- The girls' restroom is down the hall, and the men's restroom is on the second floor.
- The boys' locker room door is painted green, and the women's locker room door is painted yellow.
- The men's department is on the right; the ladies' department is on the left.

Use of figures of speech, such as

- Old wives' tale
- Right-hand man
- Man versus nature
- The best man for the job
- The better half

Use of gender-specific terms or diminutive words, such as

- Sweet young thing
- Usherette
- Housewife
- Maid
- Cleaning lady
- Little woman
- Career girl
- Houseboy
- Steward

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Regional or Geographical Bias

Regional and/or geographical bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are not commonly used nationwide or within a particular region or state to which the test will be given. It also involves the use of terms that have different connotations in different parts of the country and/or geographical regions. It is important to note that some experiences may not be common to all students. For example, within a given geographic area not all students might be familiar with snow, so questions involving sleds and toboggans, for example, may well reflect a regional or geographical bias.

Examples of regional or geographical bias

- She ordered a new davenport (couch or sofa).
- Go get your toboggan (hat or type of sled).
- The students stood in line at the bubbler (water fountain or drinking fountain).
- Turn left at the berm (curb).
- Take the pike (road).

Ethnic or Cultural Bias

Ethnic bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to a particular ethnic group or culture. In addition, no minority group should be portrayed as being uneducated or poor.

Examples of ethnic or cultural bias

- Maria was in the kitchen making tacos.
- The Chinese owned a laundry in our area.
- Native Americans are very close to nature.

Terminology

Terms that have a negative connotation or that reinforce negative judgments should also be avoided. Following is a list of **acceptable** terms.

- African American
- Asian American or Pacific Island American
- Hispanic American or Latino American
- American Indian or Native American
- European American

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Socioeconomic or Class Bias

Socioeconomic or class bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include activities, possessions, or ideas that may not be common to all students within a given area. For example, not all students in a given area own CD players or video games, nor do all students in a given area participate in certain sports activities, such as golf, snow skiing, or sailing. In addition, not all students in a given area take expensive vacations or attend expensive schools.

Examples of socioeconomic or class bias

- They were members of the country club.
- The student brought seven CDs and gave two away. How many CDs did the student have left?
- The children will attend boarding school.
- How many golf balls landed in the lake?
- The club members plan to go snow skiing over the holidays.
- My great aunt lives in a town house overlooking Lake Michigan.

Religious Bias

Religious bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to a particular religious group.

Examples of religious bias

- The house on Smith Street is decorated for Halloween.
- There were several Christmas trees in the window.
- The students in the class will stand and say the Pledge of Allegiance.
- The high school students will be attending a rock-and-roll dance at the community center.

It is also important to note that no religious belief or practice should be portrayed as a universal norm or as inferior or superior to any other.

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Ageism (Bias Against a Particular Age Group)

There are other subtle forms of bias, including bias against the elderly or ageism. Ageism involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to the elderly or older persons (65 years or older). Ageism can also involve issues of bias with other age groups, including teenagers and young children.

It is important to note, however, that representing older persons or any age group fairly does not mean that the content of the items has to be revised or rewritten to seem unrealistic. Rather, as a whole, the items and the test should show older people or any age group in a variety of roles and activities whenever they appear naturally in the test content.

Examples of ageism (bias against a particular age group)

- Despite the fact that she was very old, she was able to walk down the stairs.
- The child's grandfather seemed senile.
- They were acting like typical irresponsible teenagers.

Bias Against Persons with Disabilities

Another form of subtle bias involves issues of bias related to persons with disabilities. This type of bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to persons with disabilities. It is important to note, however, that representing persons with disabilities does not mean that the content of the items has to be revised or rewritten to seem unrealistic. Rather, as a whole, the items and the test should show people with disabilities in a variety of roles and activities whenever they appear naturally in the test content.

Examples of bias against persons with disabilities

- After the car accident, the student was confined to a wheelchair.
- He became a successful writer despite his disability.
- She is a blind person.
- The student is handicapped.
- The child made great strides in overcoming her disability.

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Terminology

Terms that have a negative connotation or that reinforce negative judgments (crippled, victim, afflicted, confined, etc.) should also be avoided. It is also important that no one with a disability should be pictured as helpless or portrayed as pitiful.

Do not use	*Use*
Retarded	Developmentally delayed
Hearing-impaired	Hard-of-hearing
Deaf and dumb or deaf mute	Deaf or hard-of-hearing
Learning-disabled	Person with a learning disability
Mentally ill	Person with a significant or cognitive disability
Handicap	Disability
Blind	Visually-impaired

Experiential Bias

The questions and activities reflected in the items or test as a whole should also be relevant to the life experiences of the students responding to the items. In other words, for a student to respond sensibly to the test questions, he or she must know what the question is about. In addition, culturally specific knowledge should be avoided, along with the use of difficult words and figures of speech.

Examples of experiential bias

- Pat knew she would win the race as she had an ace up her sleeve.
- Put the pedal to the metal and clean up your room.
- I needed change for the subway turnstile.
- The arroyos filled quickly during the storm.
- The super takes care of cleaning the foyer.

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Maintaining Balance

Bias may also occur as a result of having a lack of balance through underrepresentation of a particular ethnic group and/or gender. Therefore, whenever possible, tests and test-related materials should contain content that is balanced across ethnic groups and across gender. The content of the pool of items and/or test as a whole should also reflect cultural diversity. In order to achieve balance, the test developers at DRC review the pool of items or the test as a whole, to determine whether or not there is an adequate representation of

- Females and males in both traditional and nontraditional roles
- Female and male names
- Minority groups in various environments and occupations
- Minority groups, including the use of names

The issue of fairness also involves content inclusiveness. Subtle forms of bias can result from omitting certain areas of information and/or topics. Wherever possible, the content should show people in everyday situations and groups should be depicted as fully integrated in the society, reflecting the diverse multicultural composition of society as a whole (NES, page 9).

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Topics to Avoid

Because issues of bias, fairness, and sensitivity in testing can have a direct impact on the test scores, it is also important that sensitive and offensive topics be avoided. A topic might be considered offensive or controversial if it offends teachers, students, parents, or the community at large. This includes highly charged and controversial topics such as abortion, the death penalty, and evolution. Unacceptable content might also include less controversial topics, such as the use of tobacco or topics that could evoke unpleasant emotions on the part of a given student. In addition, topics that appear to promote or defend a particular set of values should be avoided. It is important to remember that the ability of the student to take the test should never be undermined. Following are examples of topics generally to be avoided.

Examples of topics to be generally avoided

- Abortion
- Alcohol, including beer and wine
- Behaviors that are inappropriate, including stealing, cheating, lying, and other criminal and/or anti-social behaviors and activities
- Biographies of controversial figures whether or not they are still alive
- Birthdays
- Cancer and other diseases that might be considered fatal (HIV, AIDS)
- Criticism of democracy or capitalism
- Dangerous behavior
- Death of animals or animals dying or being mistreated
- Death, murder, and suicide
- Disasters, including tornadoes, hurricanes, etc. (unless treated as scientific subjects)
- Disrespect of any mainstream racial or religious group
- Double meanings of words that have sexually suggestive meanings
- Evolution
- Family experiences that may be upsetting, including divorce or loss of a job
- Feminist or chauvinistic topics
- Gambling
- Guns and gun control
- Holidays of religious origin (e.g., Halloween, Christmas, Easter)
- Junk food, including candy, gum, chips
- Left- or right-wing politics
- Luxuries (homes with swimming pools, expensive clothes, expensive vacations, and sports activities that typically require the purchase of expensive equipment such as snow skiing)
- Parapsychology
- Physical, emotional, and/or mental abuse, including animal, child, and/or spousal abuse
- Religions (mythology, folk tales, and fables may be problematic also)

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Topics to Avoid (continued)

- Rock music, including rap and heavy metal
- Sex, including kissing and dating
- Slavery (unless presented in an historical context and presented appropriately)
- Tobacco
- Violence against a particular group of people or animals
- Wars
- Witchcraft, sorcery, or magic
- Words that might be problematic to a specific ethnic group

Special Considerations for Alaska Items

1. **MANY ORDINARY FACTS IN THE "LOWER 48" ARE NOT TRUE IN ALASKA**. Examples-There are no snakes in Alaska! You cannot take a bus to its capital city, Juneau. In fact, you cannot even drive to Juneau. It is the only state capital accessible only by boat or plane. **Make sure you check facts for accuracy in Alaska.**

2. The following are special considerations unique to Alaska:
   - Air Conditioning
   - Skateboards
   - Skyscrapers
   - Snakes (there are no snakes in Alaska)
   - Mail Carriers (do not use; most Alaskans have a post office where they pick up their mail)
   - Fairs/carnivals (avoid with younger students; older students may be familiar with a state fair)
   - Garden Stores
   - Counties
   - School Auditoriums (don't use)
   - Blocks as in city blocks (avoid with 3rd grade)
   - Oak, Maple, Elm trees (Alaska has Alder and Birch)
   - Snowmobile (use snow machine)
   - Musk Oxen (use Musk Ox)
   - Fur Seal (use Seal)
   - Country, Countryside (use wilderness)

3. General Information:
   - The mountain is Mt. McKinley, the park is Denali
   - Costs are higher in Alaska (check prices)
   - Basketball is very common
   - Outside refers to out of Alaska; use outdoors.
   - Caution about passages or text regarding burial sites

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Use a balance of urban and non-urban as in very, very, rural situations.
Latino names are rather uncommon.
Use sparingly-theaters (majority are limited to video rentals) Tennis, Football, Softball,
Museums, Parades, Parks (50% of students probably do not have a park in their area or live in a neighborhood.)
Check on use of city, town, village. There are a few towns (Kiana, Mountain Village, Kaktovik, Wasilla, Big Lake. There are more villages such as, Nulato, Alakanuk, Point Lay, Craig Wass, Gabriel, Jason, Sophie, Margie etc.
Use animals, birds, plants and trees common to Alaskans. Check the facts. Common AK birds: swallow, robin, sea gull, raven, geese, swans, eagles, seagulls. Not really any cardinals, so they say.

Names
When reading passages are taken from published sources, the characters' names have already been chosen. However, for passages or items that are written specifically for a test, the writer or editor should give careful thought to characters and their names.

To enhance diversity, ethnic names are often desirable. On the other hand, ethnic names are sometimes unfamiliar and difficult to pronounce, especially for poor readers. Good judgment is required to select names that represent diversity without introducing readability problems. Use conventional spelling of names. Use common names.

Common Alaska names: Anuska, Anecia, Natlaia, Tasha, Ivan, Evan, Wassillie, Nick, Josh, Herman, Annie, Anna, Peter, Travis, Noah, Constantine, Tory, Crystal, Helen, Sally, Sonny,

Common bush names: Cavelia, Gusty, Sonya, Dustin, Justin, Vanessa, Roberta, Tatiana, Bagriella, Cameron, Ester, Jimmy, Sanana

Special Circumstances

In certain subject areas, a sensitive topic may be acceptable because the topic is a part of the course of study or may be required in order to measure the specific curriculum content standards and/or test objectives. For example, it may be appropriate to have test questions dealing with hurricanes. However, the questions should not focus unduly upon the destruction of property or the deaths of human beings. Other special circumstances include historical and literary contexts. A discussion of these special circumstances is provided below.

Historical Contexts

In order to measure the content curriculum standards, social studies tests often include topics that might otherwise be deemed as controversial. For example, in a history test, the

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topic of slavery might be used. The student would know that such a controversial topic is used to access knowledge of a particular curriculum content standard and/or set of objectives and, therefore, the topic would not reflect the views of the test developer.

Literary Contexts

Today's tests often require the use of authentic or previously published passages. As a result, sometimes a given passage or prompt might contain controversial material, including sentences, phrases, and/or words. If the overall passage or prompt is acceptable, it may be possible to edit and or delete the objectionable sentences, phrases, words, and/or references in order to eliminate the potential bias. In such cases, DRC test developers request permission from the publisher to make such edits and/or changes, and they would do so only if permission is granted.

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Points to Remember

When reviewing items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries for issues of bias, fairness, and sensitivity, the following questions should be asked.

1. Do the items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries:

   Demean any religious, ethnic, cultural, or social group?
   Portray anyone or any group in a stereotypical manner?
   Contain any other forms of bias, including gender, regional or geographical, ethnic or cultural, socioeconomic or class, religious, age-related bias, or bias against persons with disabilities?

2. Are there any topics that might disadvantage a student for any reason?

3. Are there any culturally specific sets of knowledge, terms, difficult words and/or figures of speech that might disadvantage a group of students?

4. Are the questions and activities reflected in the items or test as a whole relevant to the life experiences of the students responding to the items?

5. As a whole, does the test or pool of items have a balance across ethnic groups and across genders, including an adequate representation of:

   Females and males in both traditional and nontraditional roles
   Female and male names
   Minority groups in various environments and occupations
   Minority groups, including the use of ethnic names

6. Wherever possible, does the content show minority groups in everyday situations and groups depicted as fully integrated in the society, reflecting the multicultural composition of society as a whole?

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Sample Review Form

Name: _____

Date: _____

Subject Area: _____ **Grade Level:** _____

Item No.	Type of Bias							
	Gender	Regional	Ethnic	Socio-economic	Religious	Age	Experi-ential	Other

Comments:

_____

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Sample Items with Bias, Fairness, and/or Sensitivity Concerns

1. Franco Piccione cooked spaghetti for his family. When he placed 6 ounces of noodles into the water, the water temperature was $160°$ F. After 3 minutes the water temperature reached $212°$ F. What information is **not** needed to find the mean (average) rate that the water temperature changed?

A. 6 ounces of noodles

B. $160°$ water temperature

C. 3 minutes

D. $212°$ water temperature

Type of Bias: _____

2. For a community service project, Amanda's class spent 2 hours at an old folks' home. They spent $\frac{1}{2}$ of the time doing jigsaw puzzles, $\frac{1}{4}$ of the time reading, and the rest of the time watching television. How long did they spend watching television?

A. 30 minutes

B. 45 minutes

C. 60 minutes

D. 90 minutes

Type of Bias: _____

3. Which of the following items did Kathleen buy at the fair?

A. a pretzel

B. a snowball

C. a slice of pizza

D. a piece of pie

Type of Bias: _____

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4. Annalisa's parents are building her a wheelchair ramp. The ramp has to be 2 feet high and has to have a slope less than 0.5. What is a possible length for the ramp?

A. 2 feet

B. 3 feet

C. 4 feet

D. 5 feet

Type of Bias: _____

5. On July 1 the price of a share of Jolter Corporation stock was $123.38. On January 1, the price of a share was $97.41. What is the percent of decrease in the price of a share of Jolter Corporation stock between July 1 and January 1? (Round to the nearest hundredth.)

A. 1.27%

B. 21.05%

C. 25.97%

D. 26.67%

Type of Bias: _____

6. What is the main idea of the article?

A. Doctors work long hours and neglect their wives and children.

B. Doctors deal with many pressures in modern American society.

C. Doctors pay a large amount of money to attend medical school.

D. Doctors leave the profession more now than ten years ago.

Type of Bias: _____

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7. What is the main conflict in the story?

A. man versus man

B. man versus nature

C. man versus society

D. man versus self

Type of Bias: _____

8. What did Eduardo learn from the visit with his grandfather?

A. Age does not affect one's personality.

B. Older people need help with everyday tasks.

C. Age lessens one's appreciation for life.

D. Older people often have special medical needs.

Type of Bias: _____

9. Compare Ken's experience with playing golf with a time when you played golf. Support your comparison with details from the story.

Type of Bias: _____

10. What does Kim enjoy most about summer?

A. celebrating her birthday

B. swimming at the lake

C. playing softball at the park

D. reading her favorite books

Type of Bias: _____

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11. What could someone learn from reading the article?

A. Mexican people often wear sombreros and eat tacos.

B. Mexico has become a popular tourist destination.

C. Mexican people are very friendly and helpful.

D. Mexico produces many different kinds of fruit.

Type of Bias: _____

12. The Wampanoag people and the Pilgrims both lived in the same environment at the same time. Which is an example of a way the Indians used their environment **before** the Pilgrims arrived?

A. dug wells

B. grew corn, squash, and beans

C. raised sheep for wool

D. sawed trees into boards to build houses

Type of Bias: _____

13. According to the article, how is Marie different from the other children in her class?

A. She likes to play the piano.

B. She is a blind person.

C. She is tall.

D. She likes to work alone.

Type of Bias: _____

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14. Samantha entered an ice-fishing contest. She drilled an 8-inch hole. What is the circumference of the hole Samantha drilled?

Use $\pi = 3.14$.

A. 12.56 inches

B. 25.12 inches

C. 32 inches

D. 50.24 inches

Type of Bias: _____

Use the table to answer question 15.

Favorite Sports	
Sport	**Number of Members**
Golf	13
Polo	9
Rugby	5
Sailing	21

15. Melissa conducted a survey at the Morningside Country Club. She asked members to name their two favorite sports. The table above shows the results. How many members are included in Melissa's survey?

A. 12

B. 21

C. 24

D. 48

Type of Bias: _____

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16. In the story, Charlie says to Mia, "You can kill two birds with one stone." What does this phrase mean? Use details from the story to support your answer.

Type of Bias: _____

17. Mrs. Sanders ordered new windows for her house. The salesman told her that each window would be made from 4 sections of glass. Which expression represents the number of sections of glass necessary to make *W* windows for Mrs. Sanders' house?

A. $w + 4$

B. $w - 4$

C. $w \div 4$

D. $w \bullet 4$

Type of Bias: _____

Use the table to answer question 18.

Science Test Scores	
Student	**Test Score**
John	93
Susan	61
Tyson	96
Tao	93
Jessica	55
Takisha	70

18. The science test scores of six students in a lab group in Mr. Parker's class are shown in the table above. What is the mean (average) score of the test scores in the lab group?

A. 41

B. 77.5

C. 80.5

D. 93

Type of Bias: _____

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19. Animals adapt to survive in their specific environments. Which breed of livestock would be best suited for meat production in the grassland prairies of the Great Plains?

A. angora goat

B. buffalo

C. Hereford cattle

D. Suffolk sheep

Type of Bias: _____

20. Scientists studying the fossil record have observed gradual changes in the structural morphology of numerous organisms that occurred over millions of years. These changes are most likely the result of

A. accidents from cloning experiments.

B. adaptive responses to environmental change.

C. God's little mistakes leading to his creation of mankind.

D. hallucinations of an occupant of the H.M.S. Beetle.

Type of Bias: _____

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