

NOT IN PLAIN SIGHT

STUDENT BOOK: Chapter 4, pp. 106–116
 CONCEPTS: DEVIATION OF LIGHT WAVES
 METHOD: EMPIRICAL

Myopia and hyperopia are vision disorders that are rarely apparent. Eyeglasses alone are no longer a reliable indicator of poor eyesight. How can the percentage of people with impaired vision be determined?

IDENTIFYING THE RESEARCH SUBJECT

Read p. 116 in your student book for help in answering questions 1 and 2.

1. Complete the following table on the principal vision disorders.

Effect on image formation in the eye	Resulting visual impairment	Type of corrective lens
Myopia		
Hyperopia		

2. Some people tend to confuse hyperopia with a vision disorder called presbyopia.
 - a) Which of these eye disorders generally appears when a person is more than 45 years old?



Name: _____ Group: _____ Date: _____

b) What causes presbyopia?

PLANNING YOUR RESEARCH

Consult the table in the appendix of this activity to answer the following questions.

3. What variables were used to collect the data in this table?

4. What can be studied by means of this table?

CONDUCTING YOUR RESEARCH

5. Consult the table in the appendix on p. 46 to complete the table below.

Myopia and hyperopia – Survey results

Age	Males with myopia	Males with hyperopia	Total males	Females with myopia	Females with hyperopia	Total females
12–20						
21–35						
36–50						
51 and over						
Total						



Name: _____ Group: _____ Date: _____

6. Based on this table, what percentage of individuals are visually impaired? Do the following calculation to find the answer.

$$\frac{\text{Number of persons with myopia or hyperopia}}{\text{Number of survey respondents}} \times 100 =$$

7. What percentage of females in each age group below are visually impaired?

12–20 years:

21–35 years:

36–50 years:

51 years and over:

8. What is the total percentage of visually impaired females?

9. What percentage of males in each age group below are visually impaired?

12–20 years:

21–35 years:

36–50 years:

51 years and over:



Name: _____ Group: _____ Date: _____

10. What is the total percentage of visually impaired males?

REFLECTING ON YOUR APPROACH

11. What questions come to mind after examining the survey data?

12. What further information would you need to study myopia and hyperopia in greater depth?

13. How could you improve your research?

APPENDIX

SAMPLING SURVEY OF 166 QUEBECKERS

	Male (M) Female (F)	Age	Myopic (M) Hyperopic (H) or neither		Male (M) Female (F)	Age	Myopic (M) Hyperopic (H) or neither
1	F	47	Neither	43	F	12	Neither
2	F	47	Neither	44	M	36	M
3	F	42	M	45	F	49	M
4	F	41	Neither	46	F	12	M
5	M	12	H	47	M	49	M
6	M	40	M	48	M	14	M
7	M	44	Neither	49	F	12	M
8	F	47	Neither	50	F	12	Neither
9	M	12	H	51	F	14	H
10	F	45	Neither	52	F	14	H
11	F	33	Neither	53	M	14	Neither
12	M	12	M	54	F	42	Neither
13	M	14	Neither	55	F	15	M
14	F	57	M	56	F	45	Neither
15	M	61	Neither	57	M	18	M
16	F	37	M	58	F	16	M
17	M	12	Neither	59	M	37	Neither
18	M	13	M	60	F	35	Neither
19	F	39	M	61	F	43	H
20	F	35	Neither	62	M	12	H
21	M	38	Neither	63	M	76	Neither
22	F	41	H	64	M	64	Neither
23	F	13	Neither	65	M	22	Neither
24	F	37	M	66	F	17	Neither
25	M	45	Neither	67	M	18	M
26	F	12	M	68	M	17	Neither
27	F	41	M	69	F	18	Neither
28	M	43	M	70	M	18	Neither
29	F	63	M	71	F	18	Neither
30	M	76	Neither	72	M	18	Neither
31	M	59	M	73	F	18	Neither
32	F	66	M	74	F	21	M
33	M	18	Neither	75	F	20	M
34	M	15	Neither	76	M	38	M
35	F	48	Neither	77	F	56	M
36	M	50	M	78	F	31	M
37	M	12	Neither	79	F	26	Neither
38	F	55	M	80	M	23	Neither
39	F	35	Neither	81	M	21	Neither
40	F	34	M	82	F	16	H
41	M	46	Neither	83	M	15	Neither
42	F	13	Neither	84	F	15	Neither



Name: _____ Group: _____ Date: _____

SAMPLING SURVEY OF 166 QUEBECKERS (continued)

	Male (M) Female (F)	Age	Myopic (M) Hyperopic (H) or neither		Male (M) Female (F)	Age	Myopic (M) Hyperopic (H) or neither
85	F	42	M	126	F	23	Neither
86	M	43	Neither	127	F	46	H
87	F	45	M	128	M	17	H
88	M	15	Neither	129	F	15	Neither
89	M	17	Neither	130	M	40	Neither
90	M	43	M	131	M	15	M
91	M	19	Neither	132	M	15	Neither
92	M	17	Neither	133	M	13	Neither
93	M	15	Neither	134	M	43	M
94	M	47	Neither	135	F	61	Neither
95	F	45	H	136	F	58	Neither
96	M	16	Neither	137	M	38	Neither
97	M	16	Neither	138	M	44	M
98	M	16	Neither	139	M	47	Neither
99	F	16	Neither	140	M	42	M
100	F	17	Neither	141	M	43	M
101	F	16	M	142	M	36	Neither
102	F	15	Neither	143	M	36	Neither
103	M	20	Neither	144	M	54	Neither
104	F	25	H	145	M	50	M
105	F	24	Neither	146	M	45	M
106	M	49	H	147	M	37	H
107	F	16	Neither	148	M	29	Neither
108	F	15	Neither	149	M	45	Neither
109	F	16	M	150	M	32	Neither
110	M	16	Neither	151	M	43	M
111	F	46	M	152	M	36	M
112	F	15	M	153	M	58	Neither
113	M	16	Neither	154	M	32	M
114	M	50	M	155	M	55	M
115	F	14	M	156	M	45	Neither
116	F	40	M	157	F	33	Neither
117	M	13	M	158	M	26	Neither
118	M	42	Neither	159	F	25	Neither
119	M	13	Neither	160	F	22	Neither
120	F	14	M	161	M	30	M
121	F	13	M	162	M	29	H
122	F	15	Neither	163	F	28	M
123	F	47	M	164	F	22	Neither
124	M	22	H	165	M	29	Neither
125	M	55	M	166	M	26	M