

**APPENDIX A.3 TWENTY-FOUR ABILITY VARIABLES:
MEANS, STANDARD DEVIATIONS AND RELIABILITIES**

Variables	Grant-White (N = 145)			Pasteur (N = 156)		
	Mean	Standard Deviation	Reliability Coefficient	Mean	Standard Deviation	Reliability Coefficient
1. Visual Perception	29.60	6.89	.7563	29.65	7.09	.7661
2. Cubes	24.80	4.43	.5677	23.94	4.91	.6105
3. Paper Form Board	14.30	2.81	.4396	14.16	2.84	.3628
4. Lozenges	15.97	8.29	.9365	19.90	9.28	.9542
5. General Information	44.85	11.62	.8077	36.60	11.70	.7969
6. Paragraph Comprehension	9.95	3.36	.6507	8.47	3.45	.7499
7. Sentence Completion	18.85	4.63	.7536	15.98	5.23	.8297
8. Word Classification	28.20	5.34	.6802	24.20	5.27	.6793
9. Word Meaning	17.28	7.92	.8701	13.45	6.91	.8472
10. Add	90.18	23.70	.9518	101.94	25.88	.9586
11. Code	68.59	16.61	.7116	69.69	14.67	.6228
12. Counting Groups of Dots	109.75	20.92	.9374	111.26	19.51	.9164
13. Straight and Curved Capitals	191.78	36.91	.8889	193.82	38.18	.8765
14. Word Recognition	176.28	10.79	.6483	174.78	12.86	.7619
15. Number Recognition	89.37	7.52	.5070	90.60	7.85	.5169
16. Figure Recognition	103.40	6.78	.5997	101.71	8.24	.6633
17. Object-Number	7.21	4.55	.7248	9.19	5.03	.3952
18. Number-Figure	9.44	4.49	.6101	9.38	4.50	.6036
19. Figure-Word	15.24	3.58	.5686	12.85	4.28	.7185
20. Deduction	30.34	19.71	.6492	23.67	18.34	.6946
21. Numerical Puzzles	14.46	4.82	.7843	14.06	4.29	.8018
22. Problem Reasoning	27.73	9.79	.7866	24.85	8.34	.7348
23. Series Completion	18.75	9.33	.9310	17.56	8.89	.9246
24. Woody-McCall Mixed Fundamentals, Form I	25.83	4.70	.8362	22.81	4.27	.8134
25. Paper Form Board	15.65	3.08	.5437			
26. Flags	36.30	8.31	.9215			

Note: The number of cases varies for the r_{tt} 's from 143 to 152 for Grant-White and from 158 to 165 for Pasteur. The reliabilities are as published but the other statistics have been recomputed and occasionally vary from that reported by Holzinger and Swineford (1939: 17). The raw data are given in the original report; the correlations are presented in Table 6.2.1.

TABLE 6.2.1 (Part 1) CORRELATIONS AMONG 24 ABILITY VARIABLES

	1	2	5	6	7	8	9	10	11	12	13	14
1	10000											
2	3258	10000										
5	3277	2751	10000									
6	3416	2280	6217	10000								
7	3091	1595	6539	7186	10000							
8	3261	1560	5739	5205	6327	10000						
9	3171	1947	7203	7145	6853	5367	10000					
10	1042	0664	3142	2089	2539	2966	1787	10000				
11	3060	1509	3425	3596	2480	2936	2871	4676	10000			
12	3082	1675	2100	1042	1981	2905	1220	5864	4225	10000		
13	4868	2479	3434	3144	3556	4051	2718	4183	5271	5284	10000	
14	1297	0819	2614	2863	2332	2427	2499	1570	3239	1310	1935	10000
15	2228	1349	2191	2490	1573	1698	2133	1500	2384	1648	1381	3870
16	4194	2892	1768	2882	2007	2987	2360	1370	3144	1284	2771	3817
17	1690	0110	2127	2758	2506	2707	2851	3013	3571	2790	1906	3721
18	3641	2639	2593	1672	1756	2576	2126	3198	3463	3478	3254	1987
19	2672	1104	1957	2510	2414	2613	2765	1989	2897	1089	2523	2187
20	3601	2944	4000	4332	4585	4303	4515	1619	2035	2526	2476	3090
21	3706	2937	3192	2632	3144	3608	2720	4018	3964	3572	4309	1823
22	4137	2344	4446	3893	4005	3632	4917	1549	3170	2026	2901	2494
23	4687	3411	4340	4324	4080	4941	4958	2553	2510	3538	3836	2508
24	2734	2059	4156	4329	4400	3886	4177	5294	4112	4146	3570	2945
25	3990	3128	2489	2684	2272	3727	1766	-0750	0853	1436	3162	1771
26	4651	2272	2336	3304	3408	3850	3166	0908	1101	1687	3378	0621

Note: Decimals omitted. Normally only two decimal places would be reported; four places are given here to enable the reader to reproduce other analyses based upon this matrix. Variables 3 and 4 were not included since they were parallel forms of variables 25 and 26.

TABLE 6.2.1 (Part 2) CORRELATIONS AMONG 24 ABILITY VARIABLES

	15	16	17	18	19	20	21	22	23	24	25	26
15	10000											
16	3133	10000										
17	3464	3395	10000									
18	3181	3549	4524	10000								
19	1833	2538	3274	3578	10000							
20	2631	3939	2785	3048	1702	10000						
21	2322	3541	1889	3570	3313	4066	10000					
22	2455	2912	2958	3178	3468	4770	3740	10000				
23	2524	3548	3000	2671	2982	5152	4473	5079	10000			
24	1609	2702	3429	4050	3737	3691	4481	3778	4311	10000		
25	0669	2619	1761	2106	3118	3073	1645	2555	3865	2026	10000	
26	1261	3389	1934	2528	1346	3458	3519	3790	3365	2533	2989	10000

Note: Decimals omitted.

Test 1
VISUAL-PERCEPTION TEST

Test 2
CUBES

Part A

1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Go to next page. Do not wait for any signal.

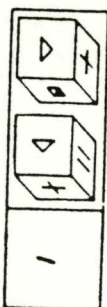
Name _____
Date _____

The drawings in this test represent cubes. A cube has six faces. No two faces of any cube have the same design.

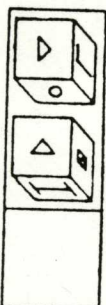
If a pair of drawings can be two pictures of the same cube, put a "1" in the blank square.

If the pair of drawings must be pictures of two different cubes, put a "2" in the square.

Notice that both the drawings below can represent the same cube in two positions. Therefore a "1" has been placed in the blank square.



Look at the two drawings below. They can not both represent the same cube, so put a "2" in the blank square to indicate that they must be pictures of two different cubes.



Remember that there is a different design on each face of the cube.

Stop here. Wait for further instructions.

APPENDIX I

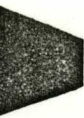
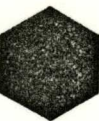
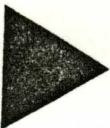
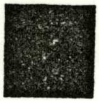
Test 4
LOZENGES

APPENDIX I

Test 3
PAPER FORM BOARD

Name _____

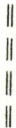
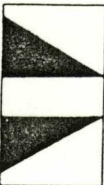
Date _____



The two black pieces can be placed together to form a square exactly like the square at the top of the page. Look at the column at the right. The space between the two lines under the little square has been filled in with pencil to show that the correct answer is a square.

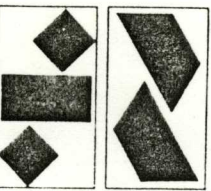
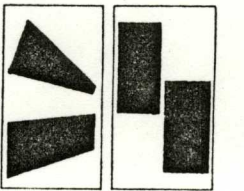


These black pieces can be placed to make a triangle. Fill in with pencil the space between the lines under the little triangle to show the correct answer.



DEPART! No piece of any puzzle has been turned over. Imagine that you can move the pieces around into any position without picking them up. All the pieces are right side up.

Do the four problems below, and then wait for further instructions.



Name _____
Date _____

Figure 1 represents a lozenge-shaped card. It has a hole in one corner. It is painted black on one edge. Imagine that it is picked up, turned over, and placed face down so that the black edge touches the long black line in Figure 2. Decide which of the two diagrams it would fit. Where would the hole be? It is shown in Figure 2.

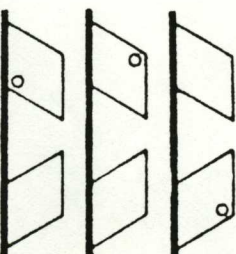
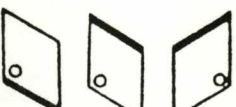


FIG. 1

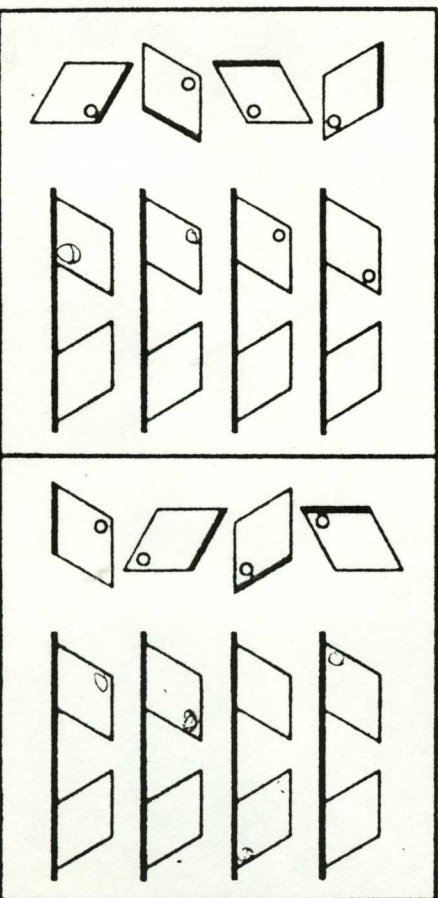


FIG. 2

In each of the other three sample problems imagine that the card is picked up, turned over, and placed face down so that the black edge touches the long black line. Decide which of the two diagrams it would fit and where the hole would be. In each of these examples a small circle has been drawn to show where the hole would be.



For each of the following problems decide which of the two diagrams the card would fit when it has been turned over and draw a small circle to show where the hole would be. The first two problems below have been marked for you.



When the signal is given (not yet), turn the page and do more problems of the same kind.

Stop here. Wait for further instructions.

APPENDIX I

Test 5
GENERAL INFORMATION
Form A

Name _____
Date _____

In each sentence below you have four choices for the last word, but only one is right. From the last four words of each sentence, select the right one and underline it.

EXAMPLE: Men see with their ears, nose, eyes, mouths.

1. Pumpkins grow on bushes, trees, vines, shrubs.
2. Coral comes from reefs, mines, trees, tanks.
3. Sugar cane grows mostly in Montana, Texas, Illinois, New York.
4. The meat from a sheep is called beef, veal, mutton, pork.
5. Punctual means pointed, tardy, quarrelsome, on time.
6. The Pacific Ocean was discovered by Balboa, Cortez, Columbus, Drake.

Test 7
SENTENCE COMPLETION

Name _____
Date _____

Each sentence in this test is incomplete. Under it are four words. Draw a line under the one word (or expression) which best completes the sentence.

EXAMPLE: Stamps are put on _____

tables letters pictures trees

Draw a line under the word which belongs at the end of the sentence.

1. He could not speak their language but made himself understood by sounds smiles signs threats
2. He could do almost everything well, because he was so clever brave happy tall
3. A person may have much money and yet not be able to obtain good clothes health diamonds jewelry
4. At home she does not understand how to take difficulties quarrels arrangements labor

80

APPENDIX I

Test 6
PARAGRAPH COMPREHENSION*

Name _____
Date _____

Directions. This is an exercise to find out how well you can understand the meaning of what you read. It is composed of several paragraphs, followed by questions. Read each paragraph and answer the questions based on it. You may read a paragraph again, if necessary. Make your answers short. Usually one or two words will be enough. Where several choices are given in a question, underline the one you think is correct. Do the sample exercise below.

Sample Exercise

It was a cold and stormy December day. A blinding snow swept down upon the city from the north. A stream of afternoon shoppers hurried along the street with heads bent against the wintry blast.

1. What season of the year was it? _____
2. Was the sun shining? _____
3. Underline the word that tells how the shoppers walked. (a) slowly (b) leisurely (c) gayly (d) rapidly (e) proudly

Wait for the signal to start. If you have questions, ask them now, as no questions will be answered after the exercise starts. You need not hurry, as a period of twenty minutes will be allowed, which is ample time to cover all the paragraphs.

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APPENDIX I

Test 8
WORD CLASSIFICATION

Name _____
Date _____

In each line of words on these pages four words or phrases belong together in some way. One of the words does not belong with the other four. Look at the following line:

dog oat chair lion giraffe

The four words which belong together here are dog, oat, lion, and giraffe, because they are all animals. Since a chair is not an animal it does not belong, so it has a line drawn under it. Now look at this line:

violin french horn piano violoncello harp

The four words which belong together here are violin, piano, violoncello, and harp, because they are all stringed instruments. Since a french horn is not a stringed instrument it does not belong with the others, so draw a line under french horn.

In each exercise you are to look for the four words or phrases which belong together; then draw a line under the one word or phrase which does not belong with the others.

1. apples peaches nuts pears cherries
2. book marbles pencil map slate

Test 9
WORD MEANING*

Name _____
Date _____

Directions. In each of the exercises below, you should read the sample sentence or expression, then read the five words or phrases following it, and select the one whose meaning is most nearly like the meaning of the word which is underlined in the sentence. Draw a line under the word thus selected and place its number in the parentheses at the right. Notice the example:

Example. They will invite him to go.
(1) tell (2) command (3) ask (4) forbid (5) select (3)

(1) please (2) adjust (3) carry (4) conduct (5) consider ()

(1) appliance (2) clothing (3) reading matter (4) engine (5) expert-ment ()

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APPENDIX I

Test 10
ADD

Name _____

2	6	4	9	2	3	1	1	3	7	6	2	5	8	7	2
1	3	3	0	7	5	8	6	6	2	1	2	2	0	1	4
7	5	3	3	5	1	6	4	0	1	5	3	8	4	8	4
5	5	4	3	8	7	4	2	9	2	3	4	1	9	5	6
5	9	5	2	7	6	7	9	1	4	5	4	8	0	8	3
0	8	1	5	3	6	8	1	5	2	7	4	9	5	7	1
2	0	7	4	1	2	7	3	3	1	7	8	2	9	2	0
4	2	9	4	3	8	0	2	7	9	6	4	0	7	3	7

Test 11
CODE - Form A

Name _____
Date _____

Т К К К
2 X A

Т К К К Т К К К Т К К К Т К К К Т К К К Т К К К

Т К К К Т К К К Т К К К Т К К К Т К К К Т К К К

Т К К К Т К К К Т К К К Т К К К Т К К К Т К К К

APPENDIX I

Test 12
COUNTING GROUPS OF DOTS

Name _____
Date _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Test 14--Study Sheet
WORD RECOGNITION
Form A

Memorize these words so that you will know them when you see them again in a longer list.

- ball
- bear
- bowl
- coat
- flag
- form
- foul
- fuel

APPENDIX I
Test 14--Answer Sheet
WORD RECOGNITION
Form A

Name _____
Date _____
Put a check mark (✓) after all the words that you have just memorized. Do not check any new words.

- wolf ()
- moon ()
- frog ()
- pair ()
- head ()
- fill ()
- bale ()
- bear ()
- sold ()
- star ()
- coat ()
- part ()
- grow ()
- flat ()
- flap ()
- stow ()
- seek ()
- roll ()
- bowl ()
- soul ()
- pins ()
- high ()
- trap ()
- fuel ()
- hear ()
- hide ()
- bush ()
- hand ()
- take ()
- swam ()
- bean ()
- with ()

Test 13
STRAIGHT AND CURVED CAPITALS

Name _____
Date _____

T	J	Q	O	E	I	Q	D	H	L	P	V	M	J	O
B	H	K	B	L	S	J	R	O	P	T	K	B	M	
U	D	Q	J	P	D	U	H	L	V	P	B	S	U	I
T	J	H	K	J	C	B	F	B	J	F	H	U	D	R
K	O	J	T	B	F	U	L	Q	T	H	J	H	O	S
T	Z	P	S	H	J	K	L	D	T	P	U	O	R	U
H	Q	J	T	V	K	T	S	P	M	U	Y	C	P	B
H	L	B	J	U	D	T	B	G	R	H	Q	T	L	P

Test 16--Study Sheet
NUMBER RECOGNITION
Form A

Memorize these numbers so that you will know them when you see them again in a longer list.

- 374
- 732
- 698
- 302
- 117
- 893
- 396
- 461

Test 15--Answer Sheet
NUMBER RECOGNITION
A B

Name _____
Date _____
Put a check mark (✓) after all the numbers that you have just memorized. Do not check any new numbers.

- 375 ()
- 649 ()
- 938 ()
- 302 ()
- 398 ()
- 237 ()
- 171 ()
- 532 ()
- 179 ()
- 395 ()
- 109 ()
- 732 ()
- 971 ()
- 275 ()
- 372 ()
- 901 ()
- 693 ()

APPENDIX I

Test 18--Study Sheet
NUMBER-FIGURE
Form A

Test 18--Answer Sheet
NUMBER-FIGURE
Form A

Here is a list of numbers. Each has a figure, or picture, with it. Study the list so that you can remember the figure that belongs with each number.

Name _____
Date _____
After each number draw the figure that belongs with it.

Number Figure

52 

Number Figure

17 _____

74 

66 _____













12 

37 _____

APPENDIX I

Test 16--Study Sheet
FIGURE RECOGNITION
Form A

Study these figures so that you will know them when you see them again.

Object Number

- apple 29
- branch 71
- candy 58
- chair 44
- cloud 53
- dress 67
- flour 15
- grass 32
- heart 96

Test 17--Study Sheet
OBJECT-NUMBER
Form A

Here is a list of objects. Each one has a number. Study the list so that you can remember the number of each object.

Name _____

Date _____

After each object, write the number that belongs with it.













Object Number

- Pupil _____
- chair _____
- house _____
- sugar _____
- flour _____
- river _____
- apple _____
- match _____
- train _____

Test 16--Answer Sheet
FIGURE RECOGNITION
Form A

Name _____
Date _____

Put a check mark (✓) in the space after each figure that was on the study sheet. Do not put a check after any figures that you have not studied.

Test 19--Study Sheet
FIGURE-WORD
Form A

Test 19--Answer Sheet
FIGURE-WORD
Form A

Here is a list of figures. Each has a word with it. Study the list so that you can remember the word that belongs with each figure.

Name _____
Date _____
After each figure write the word that belongs with it.


Figure Word


 key

Figure Word

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 ink

 ink

 tile

::

APPENDIX I

Test 22
PROBLEM REASONING

Name _____

Date _____

In each problem in this test imagine that you wish to measure out a certain amount of water. You have two or three cans with which to do the measuring. You will be told exactly how much water each can holds. The method of measuring the desired amount is printed for you, and you are to fill in the spaces with the correct numbers.

Look at the following example:

Size of empty cans	Amount of water desired	Method of measuring the desired amount of water
8-pint can	2 pints	Fill the 8 pint can and pour into the 6 pint can. The remainder in the 8 pint can is the desired 2 pints.
6-pint can		

Remember that you are to use only the cans listed in the first column. These are different for each problem. The desired amount of water can be in either one or two cans.

DO NOT TURN THIS PAGE YET. WAIT FOR SIGNAL.

APPENDIX I

Test 26
FLAGS

Name _____

Date _____

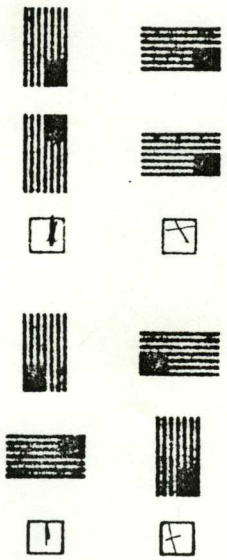
Look at the two flag pictures below. They represent opposite sides of the same flag. A minus sign (-) has been placed in the square because the pictures show opposite sides of the flag.



Now look at the next two pictures. If they represent the same side of the flag, mark them plus (+). If they represent opposite sides of the same flag, mark them minus.



Try the problems at the bottom of the page. If the two pictures show the same side of the flag, write a plus sign (+) in the square. If the two pictures show opposite sides of the flag, write a minus sign (-) in the square.



DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO