



" "

-

2012 / 1433

:

"

"

-

:

/

/

/



" " :
21020342 :

:

:

2012/7/1 :

[Handwritten signature]
..... :
[Handwritten signature]
..... :
[Handwritten signature]
..... :

: -1
: -2
: -3

:

.....عبد الحسيب.....

" " ;

2012 / 7 / 1 :

(25)

(67)

(140)

(73)

"

"

:

(ANCOVA)

:

The Effect of Using the Process-Oriented Inquiry Approach in Teaching Science on Science Processes among Sixth Grade Students, and Their Attitudes towards Science.

Prepared by: Abeer "Daud Azmi" Suliman EL Husseini.

Supervisor: Dr. Mohsen M. Adas

Abstract:

The study aims to investigate the effect of using the Process-Oriented Inquiry Approach in teaching science on science processes among sixth graders, and their attitudes towards science, in the district of Ramallah and Al-Bireh. To achieve the goal of the study, the researcher designed a scale for science processes, consisting of 25 multiple choice questions, and developed a questionnaire to measure the students' attitudes towards science. The validity and reliability were examined for both and found suitable. The study was applied on a purposive sample consisting of 140 students; 67 male students from Ameen Al-Husseini Boys' School; 73 female students from Aziz Shaheen Secondary Girls' School. The students were distributed into four class sections. A section in each school was randomly assigned to be the experimental group, in which students studied science through the process-oriented inquiry method. The other section was chosen as the control group, in which students studied science in the traditional way.

The unit "Electricity in our Lives" from the sixth grade General Science book was structured according to the process-oriented inquiry method, and an accompanying teacher guide was written to help the teachers in teaching the unit to the experimental group, according to the chosen strategy.

To answer the questions of the study and test the validity of the related hypothesis, the two instruments were applied on both experimental and control groups, before and after the experimental treatment. The data was collected and analyzed using the Analysis of Covariance test (ANCOVA).

The results of the analysis were:

There were significant differences in the student performance means in the science processes scale attributed to: the method of teaching, in favor of the experimental group, the gender, in favor of males, the level of achievement in science, in favor of the higher level when compared with the middle and lower levels, and the interaction between group and gender. However, there were no significant differences in the student performance means in the science processes scale attributed to the interaction between group and the level of achievement in science, the interaction between gender and the level of achievement in science, and the interaction between group, gender and the level of achievement in science. As for the students' attitudes towards science, results revealed that there were significant differences in the student attitude means towards science attributed to the method of teaching, in favor of the experimental group. However, there were no significant differences in the student attitude means towards science attributed to: gender, the level of achievement, the interaction between group and gender, the interaction between group and the level of achievement in science, the interaction between gender and the level of achievement in science, and the interaction between group, gender and the achievement of science.

The results of this study and its generalization agreed with what was mentioned in the theoretical literature about the Process-Oriented Inquiry Approach and its effect on the development of science processes among students and their attitudes towards science. In light of these results, the researcher recommends the application of this method as a threshold to teaching science.



1.1

2.1

3.1

4.1

5.1

6.1

7.1

8.1



: 1.1

.(Jarrett, 1997)

.(2011)

(2002)

: 1996

" "

"

"

National Science Teacher (NSTA),2003)

(National Research

(Association

(Council (NRC), 1996

.

.(2010)

()

)

()

.(2007

(2011)

.(2007)

() ()

.()

.(1999)

(2010) (Sund & Carin)

.(2010)

(%27-20)

.(1988)

.(2007)

.(1988)

.(NRC, 1996)

:

Science – A Process)

-

.(1989)

(Approach (SAPA)

(2010)

(NSES)

(NRC, 2008)

: 2.1

Cookbook style

: 3.1

: 4.1

:

:

:

.(0.05 $\geq \alpha$)

: **5.1**

(0.05 $\geq \alpha$)

:

.

(0.05 $\geq \alpha$)

:

.

: **6.1**

.

	:	-
	:	-
	:	-
	:	-
	:	7.1
	:	
-2011	:	.1
	:	. 2012
	:	.2
	:	.3

() : .4

. : .5

: 8.1

" :

.(273 2010)"

() :

:

" :

.(13 1999)"
" : (51 2006)

."

:

:

:

" (267 1989) :

.()

."

" / (13 1988)

()

()

()

.()

()

."

:

:

-

-

-

:

. 2012-2011

: ()

(60)

(80)

(60)

(80)

:

. 12-11



: 1.2
1.1.2
2.1.2
3.1.2
4.1.2

: 2.2
: 1.2.2
: 2.2.2
: 3.2.2
4.2.2

:

1.2

:

"

)

"

(2011

.(2011)

.(2008 2008)

()

()

...

(2007 2008)

:

:

-
-
-
-

: 1.1.2

:

1900

1909

(Joseph Schwab)

.(NRC, 2008)

(Piaget)

.(2007)

(1977-1950)

1957 (Sputnik)

(NSF)

)

.(NRC, 2008 2008

– (2061)

(AAAS)

1985

()

(2061)

(AAAS, 1993)

AAAS,)

.(1993

NRC,)

(2061)

(1996

()

Minds-On ()

Hands-On

.Heads-On ()

Inquiry

Inquiry

verb

quirer :

()

inward

In :

Inquiry

.to question

(Inquiry)

Into ()

) () () ()
(2007)

(2008)

" (196 2011)

(NSES)

.(NRC, 2008 ;NRC, 1996)

(Richard Suchman)

(2011 2007)

(Alfred Novak)

()

.(Jarrett, 1997)

(Sund & Trowbridge)

.(2011 Opara&Oguzor, 2011)

(John Dewey)

.(2011)

()

.(2007) ()

doing science

Minds-on

Hands-on

.(NRC, 1996)

(1960)

:

:

-

:

-

:

-

:

-

(NRC, 2008)

(2007)

:

: Structured inquiry ()

-1

: Guided inquiry

-2

()

: Free inquiry ()

-3

(2010)

:

: -1

: -2

:() -3

(2011)

.(1.2)

:1.2

:Conformation -1

:Structured inquiry -2

:Guided inquiry -3

:

(Bell,Smetana &) Continuum

Binns, 2005

Cookbook style

Structured inquiry ()

Guided inquiry

Free inquiry ()

:

.(Jarrett, 1997)

(Bonnstetter, 1998)

(2.2)

()

:2.2

			()		
/					
	/				()
		/			
			/		

(NRC, 2008)

.(3.2)

: -3.2

				-1
				-2
				-3

: -3.2

				-4
				-5

:

-1

-2

.(NRC, 2008)

-3

(NRC, 2008)

(2007)

(Colburn)

:

-1

-2

()

-3

-4

-5

-6

(2011)

:

(2010)

:

-1

:

-2

-3

-4

-5

(1989)

.(Bonnstetter,1998)

(1989	2008	2011	2011)
		:		-1
		.		-2
		.		-3
()			-4
	...			-5
		()	-6
		:		-7
		.		-8
		.		-9
		.		-10
		.		-11
		.		-12
		.		-13

-14

-15

(Hands-on)

)

(Minds-on)

.(2011

(2011)

:

-

-

-

Henningsen & Stein, 1997)

-

.(;Jarrett, 1997

:

-

-

-

-

-

-

.(2011)

(NRSC, 1997)

:

:

-1

:

-2

:

-3

:

-4

: -5

: -6

() -7

:

: -8

: -

: -

: -

: -

: -

: -

: -

:

.(1992)

(2011)

()

()

(2010)

(2007)

(2008)

...
()

:

)
()
(

(
)
(2011)

:

(2007)

-
-
-
-
-
-
-
-
-
-
-
-
-
-

:

: -1

)

.(1989

: -2

.(1989)

(Gagne)

:

.(2007)

:

: -1

: -

“ ” “ ”

-

.

-

.

-

.(2007 2011)

:

-2

.

/ /

.(2007)

:

-3

.(2007)

:

-4

.(2010)

:

-5

.

.(2010)

.(2007)

:

-6

.(2010)

: -7

(5-3)

: -8

: -9

: -10

.(2007)

: 2.1.2

:

.

:

:

-

.

)

.(2010

:

-

.

.

(SCIENCE- A PROCESS (SAPA))

) (8-k)

- :

APPROACH

.(2010

.(2001 2010)

()

:

.(2001)

:()

-

.(2010)

:

-

1957 (Sputnik)

-1962

1966

(SAPA)

-

(SAPA)

(25-20)

Sanderson &

(SAPA)

(15)

(105)

(

)

.(Kratoch, 1971)

(1975)

(SAPAI)

(SAPA)

)

.(1998

.(2010

)

(SAPA)

-

Sanderson &)

.(Kratoch, 1971

:(SAPA) -

.(1998)

(SAPA)

-

(SAPA)

.(Sanderson & Kratoch, 1971 ;1998)

:(SAPA) -

:(1998)

:
:

:(SAPA) -

-

:

: -1

: -2

-

: -3

.

-4

.

- -5

.(2010)

:(SAPA) -

(SAPA) -

(Finlay, 1983)

-

...

(Fair test)

Minds-on
(Millar, 1998)

Hands-on

(NSES)

(NRC, 2008)

:

" :

(273 2011)

"

()

-

1966 -1962

·
-
:
()

:

(2007)

:

:

-1

-2

-3

:

:

:

:

-1

:

-2

:

-3

:

-4

: -5

: -6

: -7

:

-

-

.()

-

-

-

-

: -8

:

: -9

: -10

: :
 : :
 : -1
 .
 () : -2
 .
 : -3
 .
 : -4
 : -
)
 .(
 : -
)
 .(
 : -
 ()
 (Fair test)
 ()
 .(Fair testing)

)

:(

-5

-6

-7

-8

-9

-1

-2

-3

-4

:

-1

-2

-3

-4

-5

-6

-7

-8

-9

- 10

: 3.1.2

:

:

(2011)

.(2011)

:

:
" :(51 2006) -

."
" :(13 1999) -

."
" :(70 1999) -

."
" : (2011) -

."
" :(1991) -

(1993) -

)
) (.(
: (2010) -

:

:

2011)

:(2008 -1

: -2
-3

:

(2002)

:

: -

: -
 ()
 : -
 .
)
 2010 2008)
 (2011 2006 1999 2011
 :

:Basic Science Processes

: -
 (2008) .(2010)
 :

:Observing -1

(2010)
 .(2008)
 .(2006)

:Measuring -2

.(2010)

...

() :
(2008)

(2010)

:Classifying -3

(2010)

(2002)

)

(...
(2008)

:

-

-

-

(2005)

:Deducting -4

(2008)

(2002)

:Inducting -5

(2008)

() :Inferring -6

(2010)

(2008) ()

:

-
-
-

(2011) (11-9)

:Predicting -7

() (2010)
(2002)

:Using Numbers -8

2008)

(2011

:Using Space - Time Relation -9

)

(2011

.(2008)

:Communicating -10

.(2010)

:

.(2011)

-

-

.(2010)

:Integrated Science Processes :

-

:

.(2010)

:

(2011)

:Controlling Variables -1

()

.(2008 2010)

	:		
	:	(Independent Variable)	-
	:	(Dependent Variable)	-
-	:	(Constant Variables)	-
			-
(15 -11)	
		(2002)	
		:Formulating Hypotheses (-2
()	()
		(2008)	
		(2002)	
		(2011)	
		:Interpreting Data	-3
		()
		(2010)	
		(2002)	
		:Defining Operationally	-4
		()

-1

-2

-3

-4

-5

-6

-7

-8

:

:

-1

-2

.(2011)

-3

-4

-5

)

-6

.(1999

:

:(2007)

: -1

: -2

()

: -3

: -4

(Sciense Process Test (SPS))

)

(25)

(

()

.(2012-2011)

:Scientific Attitudes

3.2.1

:

.(NRC,1996)

:

)

:

.(2008

Scientific Attitude

(1988)

/

/

()

.()

()

()

:

()

"

"

:

...

()

"

"

:

.()

()

()

)

/

(Osborne, Simon, & Collins, 2003)

Klopfer

"

"

:

-

-

-

-

-

-

:

(1988)

:

	:	-1
()	:	-2
() .()	:	-3
() .()	:	-3
	:	-1
()	:	-2
() .()	:	-3
()	:	-4
() / ()	:	-5
()	:	-6
() .()	:	-7
()	:	-7
(1988)	:	-7

: 2.2

.(2007)

(1988)

:

: .1.2.2

: .2.2.2

: .3.2.2

: : .1.2.2

(2011)

(70 80) (150)

.() ()

(2009)

() (62 52) (114)
() ()

(Bilgin, 2009)

(55)
(28)
(27)

(Nuangchalem & Thammasena, 2009)

(10)

(15)

(20)

- -

(2008)

(POE)

(36)

:
(POEs)

Cook- Book Like

)

.(

.(- -)

(2007)

-1984

2004

.(0.67)

.0.71

()

(2007)

(76)

2005/2004

(38)

(38)

:

(2006)

(57)

2003/2002

(28)

(29)

:

(32)

(2006)

()
)

:

(40)

(

(40)

:

) : () :
(- - - -)

(1996)

(189)

(92)

(97)

)

(

(/)

(1988)

(9)

)

(3)

(2069)

.(

(203)

%50

%50

:

:

.2.2.2

(2010)

(32)

()

()

:

(30)

(30)

(2010)

(125)

.()

(2010)

(67)

(34)

:

(33)

:

(2010)

(100)

(22)

:

(2009)

()

(30)

(30)

(60)

(Saribas & Bayram, 2009)

(54)

.Marmara University

(11)

(27=)

(27=)

.(MSLQ)

			(2009)
(944)			
.			
.		(32)	
()			
	(%65.75)	(%61.25)	
		(2.63)	(2.45)
	V		(2008)
			()
	(38)		(40)
:			
(48)		(50)	

V

(2008)

(90)

(2008)

:

:

46 68 73 99 148 195 225 501 629)

%3 %4 %5 %7 %9.6 %11 %25 %31)

(8 43

(%0.4 %2 %2

(2008)

.()

(540)

(943)

(360)

(233)

(%48.1)

.(%45.9)

(2007)

-

-

(-)

(157)

""

(32)
(32)

(2007)
()

(90)

(2006)
()

() (62)

(62)

: (9) (31)

(2005)

(79 94) (173)

:

%80

%80

.%80

(Turpin & Cage, 2004)

(531)

(398)

:

(2004)

(164)

(164)

(328)

:

.(%75)

(%40.41)

(2003)

(95)

)

(

(2001)

(54)

(1988)

(1997)

86

81

167)

(

()

.

.

: .3.2.2

:

(Ergül, et . al, 2011)

(119 122)

(242)

(71)

(50)

(68)

(52)

(-)

(Aruna & Sumi, 2010)

(70)

(35)

) :

(Aktamiş & Ergin, 2008)

(40)

(Wu & Hsieh, 2006)

(29 29) (58)

)

(20)

(

(1989)

(419)

(12)

.()

1 : 3

1 : 3

." "

." "

"

(25)

"

.()

(Johnson & Alfke, 1976)

-

(30)

)

(

)

(

:

4.2.2

-1

:

2007) :

-

.(1989 1988 2006

1996

2008 2001)

-

.(2007 2009

Nuangchaler & Thammasena, 2009) :

-

.(2006

.(2009)

-

.(2011)

-

Aktamiş & Ergin, 1996) :

-

.(2008

1989) : -
(Aruna & Sumi, 2010 Ergül, et . al, 2011 2001

-2

:
:

(2008 2008) :

2005 2004) :

(2010 2009
:

(2010)
) (2006)
(2008) (2003
(2007) (2010)
) (2007)
) V (2009) (2010
(Saribas & Bayram, 2009) (2008
(Turpin & Cage, 2004)

-3

Ergül, et . al, 2011) :

(Wu & Hsieh,2006 Aruna & Sumi , 2010 1989

Aktamiş Aruna & Sumi , 2010) :

(Ergül, et . al, 2011 & Ergin,2008

(1997 Aktamiş & Ergin, 2008)
.(Aktamiş & Ergin, 2008)

-4

(Johnson & Alfke, 1976)

-5

.(Bilgin, 2009)

-6

:

-

-

-

-

.(Bilgin, 2009)

:

-

.

.

.

.()

)

.(

-

):

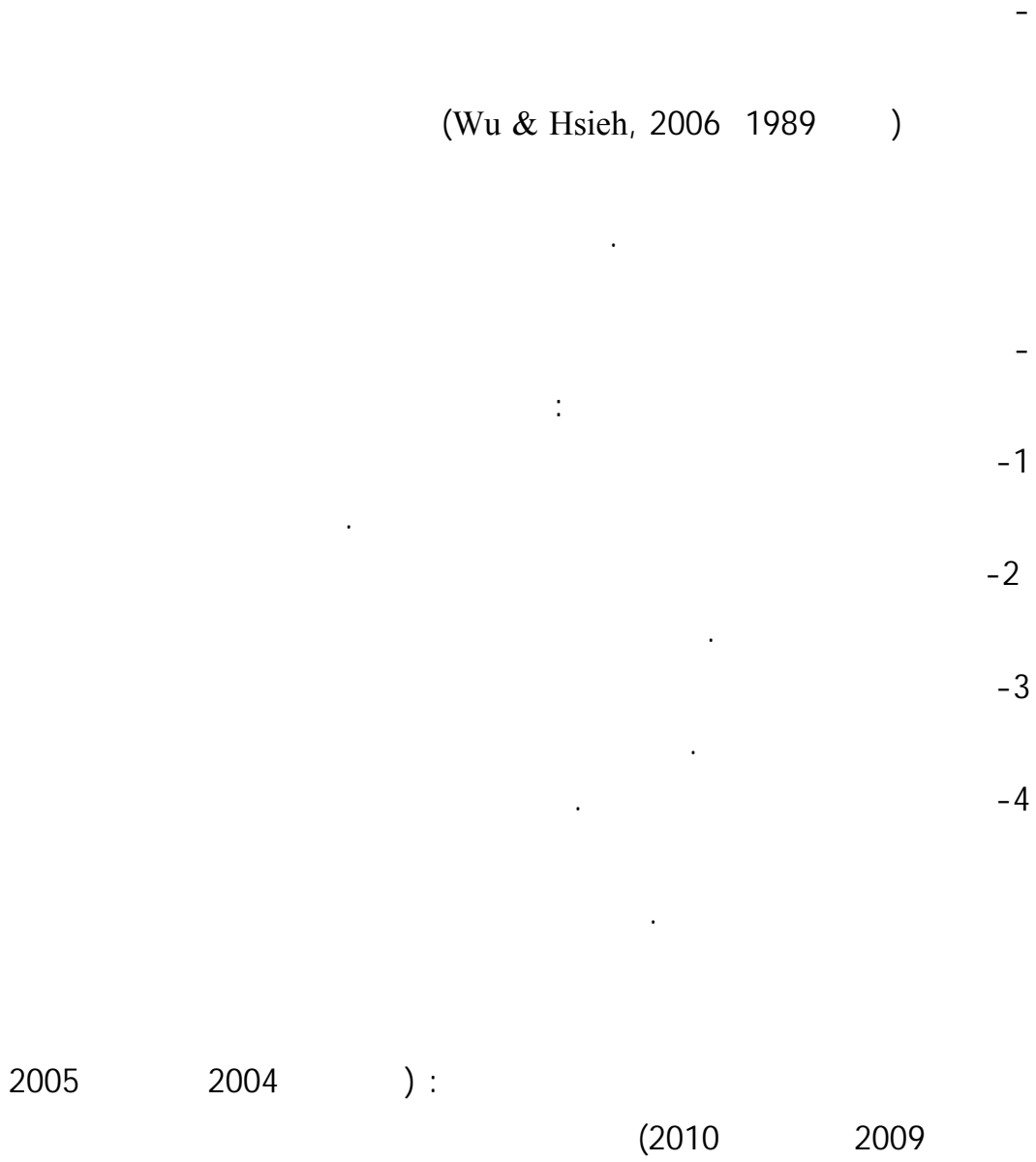
:

:

-

.(

(Wu & Hsieh, 2006 1989)





1.3

2.3

3.3

4.3

1.4.3

2.4.3

3.4.3

5.3

6.3

7.3

8.3

: 1.3

(-)

: 2.3

(2586) (2567) (5153) 2012/2011
(1.3)

. 2012 / 2011

. 2012 / 2011 : 1.3

1991	79	41	
2006	80	43	
1156	18	40	
5153	177	125	

: 3.3

(73) (67) (140)

:

-
-
-
-
-

(2.3)

: 2.3

20	10	10		
20	8	12		
27	15	12		
29	14	15		
24	14	10		
20	7	13		
140	68	72		

: 4.3

:

: .1.4.3

()

(2011)

.

: .1.1.4.3

()

:

: -1

.(5)

: -2

: -3

)

.

(

: -4

:

.
 : () -5
 : (5)
 : -
 .
 : -
 (21) (9) . (40)
 . () : -
 : -
 : :
 .
 : :
 : :
 .
 : : -
 : :
 .
 : : -
 : : -

-

: .2.1.4.3

(7)

: (2010)

$$\begin{aligned}
 & \text{()} \\
 & \text{CR} = 2M / (N1 + N2) \\
 & = \text{CR} : \\
 & = M \\
 & = N1 \\
 & = N2
 \end{aligned}$$

(%92)

: .2.4.3

) :

) : (

(25)

.(1)

: .1.2.4.3

: -1

)

.(

Wu & Hsieh, Johnson & Alfke, 1976 1997 2005)
. (1989 2006

: -2

:

-

-

-

-

:

-

-

-

-

-

-

-

-

.()

)

.(3.3)

(

:3.3

18 6 1	3	
10 8	2	
7 4 3	3	
9 5 2	3	
19 13	2	
14 12 11	3	
22 21 20	3	
23 15	2	
17 16	2	
25 24	2	
	25	

:

-3

:

.

.

.

.

.

-

-

-

-

-

: .2.2.4.3

(7)

:(6)

. -
.
.
.
.
.
.
.
.

(25)

(1)

.(2)

: .3.2.4.3

(31)

:
.
.
.

(31)

: .4.2.4.3

(0.85)

.(0.82)

:

.5.2.4.3

. (45)

:

.6.2.4.3

()

()

(25)

.

(2)

:

.3.4.3

(2008)

(4)

()

(32)

.

:

:

.1.3.4.3

:

(7)

(20 10 4 2):

(26 24 22 13 12 11 9 7 5 3 1):

(3)

(28)

(31) : .2.3.4.3

(0.92) : .3.3.4.3
(31)

(20) : .4.3.4.3

(3) : .5.3.4.3

(3) (X)
(3) (1) (2)
(2) (1)
(28) (84)

: .5.3

:

-

-

.(8)

-

()

-

()

-

:

-

:

-

-

-

(31)

-

-

(31)

-

:

-

-1

-2

-3

-4

-

2012/2011

.()

-

()

-

-

-

-

-

-

: 6.3

:

()

-

()

-

() -

:

-

-

: 7.3

(-)

(4.3)

:4.3

-		-	()
-		-	()
-		-	()
-		-	()

:

O1 O2	X	O1 O2
O1 O2		O1 O2

:

:O1

:O2

:X

: 8.3

(SPSS)

(ANCOVA)

.(Least Significant Difference)(LSD)

1.4

2.4

:

3.4

1.3.4

2.3.4



·
:

:

1.4

:

:

$(0.05 \geq \alpha)$

·

.(1.4)

:1.4

4.45	18.92	2.86	10.39	72		
4.13	13.41	2.54	10.51	68		
4.78	16.93	2.84	10.75	67		
5.32	15.62	2.56	10.18	73		
3.98	19.27	2.73	11.78	49		
4.68	15.20	2.24	10.64	44		
5.08	14.06	2.29	8.89	47		

(1.4)

$0.05 \geq \alpha$)

(ANCOVA)

(

.(2.4)

(ANCOVA)

:2.4

	()				
0.00	10.47	117.41	1.00	117.41	
0.00*	82.49	924.60	1.00	924.60	
0.00*	8.96	100.39	1.00	100.39	
0.00*	17.72	198.64	2.00	397.27	
0.02*	5.90	66.03	1.00	66.03	*
0.71	0.34	3.83	2.00	7.66	*
0.06	2.87	32.15	2.00	64.30	*
0.83	0.19	2.12	2.00	4.24	* *
		11.21	127.00	1423.54	
			140.00	40544.00	

(0.00) () (2.4)
(82.49)
(0.05 $\geq \alpha$)

(3.4)

:3.4

0.40	18.83	
0.42	13.55	

(18.83)

(3.4)

(13.55)

(8.96) () (2.4)
 (0.05 $\geq \alpha$) (0.00)

(4.4)

:4.4

0.42	17.08	
0.41	15.31	

(17.08)

(4.4)

(15.31)

() (2.4)
 (0.00) (17.72)
 (0.05 $\geq \alpha$)

(LSD)

(5.4)

(LSD)

:5.4

	-)	()	()
0.00	3.35*		
0.00	4.41*		
0.00	-3.35*		
0.17	1.05		
0.00	-4.41*		
0.17	-1.05		

()

:

() (2.4)

(0.05 $\geq \alpha$)

(0.02)

(5.90)

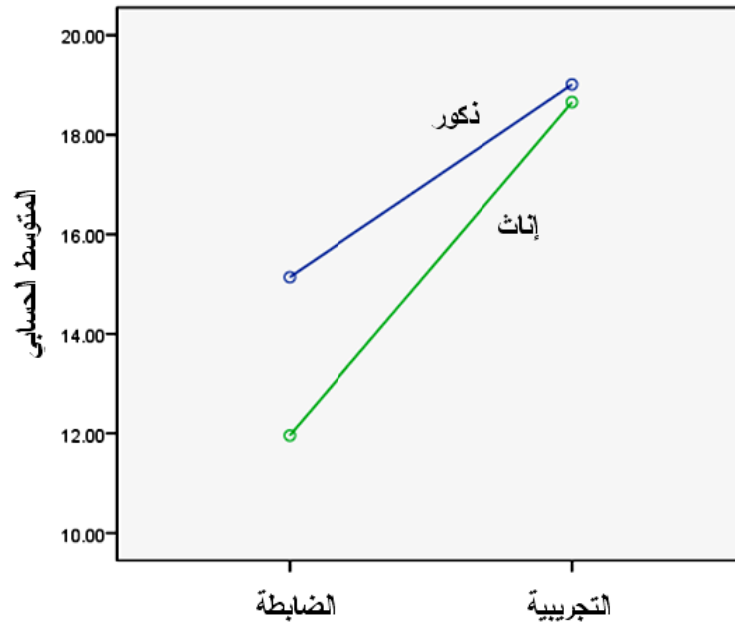
(6.4)

:6.4

0.58	19.01		
0.55	18.66		
0.61	15.19		
0.60	11.96		

(6.4)

(1.4)



:1.4

:

()

(2.4)

$\geq \alpha$)

(0.71)

(0.34)

(0.05

·
:
() (2.4)
(0.06) (2.87)
(0.05 ≥ α)

·
:
() (2.4)
(0.83) (0.19)
(0.05 ≥ α)

·
:
2.4

·
:
(0.05 ≥ α)

:7.4

8.41	71.29	7.91	70.29	68		
6.18	75.25	7.29	68.47	72		
7.21	72.12	7.68	69.09	67		
7.8	74.44	7.59	69.36	73		
5.89	76.35	7.09	73.35	49		
7.74	73.32	6.77	69.30	44		
7.86	70.19	6.49	64.80	47		

(7.4)

($0.05 \geq \alpha$)

.(8.4)

(ANCOVA)

(ANCOVA)

:8.4

	()				
0.00	34.27	1290.88	1.00	1290.88	
0.00*	19.19	722.84	1.00	722.84	
0.16	2.05	77.13	1.00	77.13	
0.25	1.40	52.74	2.00	105.48	
0.14	2.25	84.77	1.00	84.77	*
0.33	1.14	42.73	2.00	85.47	*
0.69	0.37	14.05	2.00	28.10	*
0.26	1.37	51.61	2.00	103.23	* *
		37.66	127.00	4783.28	
			140.00	760790.00	

() (8.4)

(0.00)

(19.19)

(0.05 $\geq \alpha$)

(9.4)

:9.4

0.73	75.53	
0.78	70.82	

(75.53)

(9.4)

(70.82)

(2.05)
(0.05 $\geq \alpha$)

() (8.4)
(0.16)

() (8.4)
(0.25)

(1.40)
(0.05 $\geq \alpha$)

.()

(0.05 $\geq \alpha$)

() (8.4)
(0.14)

(2.25)

:

$\geq \alpha$)

() (8.4)
(0.33) (1.14)

(0.05

(0.05 $\geq \alpha$)

:
() (8.4)
(0.69)

(0.37)

:

(0.26) () (8.4)
(1.37)

(0.05 $\geq \alpha$)

: 3.4

:

.1.3.4

-1

-2

-3

.()

-4

-5

:

.2.3.4

-1

-2

-3

-4

1.5

2.5

3.5

4.5



:

1.5

(ANCOVA)

Minds-on

Hands-on

(2003)

() ()

...

Ergül, et . al, 1997 1989) :
(Wu & Hsieh, 2006 Aruna & Sumi, 2010 2011

(ANCOVA) -

...

(ANCOVA)

()

(1989)

:

()

...

()

:

.(1989)

:

2.5

(ANCOVA)

)

(2008

(Aruna & Sumi, 2010)

:

.(Ergül, et . al, 2011)

(Aktamiş & Ergin, 2008)

-

:

(1988)

: 3.5

:

-1

:

-2

-

-

-

-3

.

-4

.

: 4.5

-1

.

-2

.

⋮
⋮

: :

.(2011).

(1)19 ()

.325-277

.(2008).

. 1420-1385 (5)22 .()

.(1996).

.(2009).

.(2006).

()

.(109)

(<http://www.abegs.org/sites/Research/DocLib2/Forms/view.aspx,1/4/2012>)

.(2011).

: 2

.(2006).

()

.(2010).

.(2011).

: .(2011).

: 3 .(2011).

.(2003).

.(99)

(<http://www.abegs.org/sites/Research/DocLib2/Forms/view.aspx,1/4/2012>)

.(2006).

(1)33

.197-181

.(1989).

.(2007).

.428-411 (2)34

.(2010).

.309-271 (1)18

.(2010).

:

6

.(2008).

.(2007).

:

.(1993).

2

:

.(1991).

:

.(1988).

:

.(2002).

.(2008).

.183-135 (114)

.234-209 – (26) .(2010).
.(2008).
.(2008).
:
.(2007).
.(2007).
.315-301 (3)3
.(2004).
.(39)7
.(2007).
.272-251 (3)3
.(2010).
:

:(2006).

.(2009).

v .(2008).

.(1999).

2

.(1992).

.(2010).

.(2011).

.(1997).

.(1998).

.(2008).

.87-79 (2)4

.(2001).

.(1999).

.(1989).

.(1988).

.103-77 (26)

(<http://www.abegs.org/sites/Research/DocLib2/Forms/view.aspx,1/4/2012>)

.(2005).

.(2001).

.(2011).

.(2008).

.194-165 (2) (24)

: :

Aktamiş, H. & Ergin, O. (2008): The effect of scientific process skills education on students' scientific creativity, science attitudes and academic achievements, **Asia-Pacific Forum on Science Learning and Teaching**, Vol. 9, Issue 1, Article 4. Retrieved 20/4/2012 from: <http://www.ied.edu.hk/apfslt/>

American Association for the Advancement of Science (AAAS).(1993).**Benchmarks for Science Literacy: Project 2061**. New York: Oxford University Press. Retrieved 10/5/2012 from: <http://www.project2061.org/publications/sfaa/online/chap1.htm>

Aruna P. K. & Sumi, V. S.(2010): Process Approach: Effect on Attitude towards Science and Process Skills in Science, **Journal of All India Association For Educational Research (JAIAER)** , 22 (1), pp.76-81 .

Bell,R, Smetana,L. & Binns,I.(2005). Simplifying Inquiry Instruction. **The Science Teacher**, Vol. 72 ,No. 7, pp. 30-33.

Bilgin, I.(2009). The effects of guided inquiry instruction incorporating a cooperative learning approach on university students'achievement of acid and bases concepts and attitude toward guided inquiry instruction. **Scientific Research and Essay**, Vol.4 (10), pp. 1038-1046.

Bonnstetter,R. (1998). Learning from the past with an eye on the future.**EJSE**, 3(1) September.

Ergül, R., Şimşekli, Y., Çalış, S., Özdilek, Z., Göçmençelesi, S. & Şanlı, M. (2011). The Effects of Inquiry-Based Science Teaching on Elementary School Students' Science Process Skills and Science Attitudes. **Bulgarian Journal of Science and Education Policy (BJSEP)**, Vol. 5, No. 1, 48-68.

Finlay, F. (1983). Science processes. **Journal of Research in Science Teaching**, 20 (1), 47-54.

Henningsen, M. & Stein, M.K. (1997) .Mathematical tasks and student cognition: Classroom-based factors that support and inhibit high-level mathematical thinking and reasoning. **Journal of Research in Mathematics Education**, 28(5), 524-549.

Jarrett, D. (1997) **.Inquiry Strategies for Science and Mathematics Learning, It's Just Good Teaching.** Northwest Regional Educational Laboratory.

Johnson, T.M. & Alfke, D. (1976): An Experimental Study of the Placement of Classification Skills in the Science-A Process Approach Curriculum Employing Piaget's Theory of Cognitive Development, **ERIC No. (ED127162).**

Millar.R. (1998). **Connecting Research in Physics Education With Teacher Education.** International Commission on Physics Education.

Monica,K.(2005).**Development and Validation of A Test of Integrated Science Process Skills for The Further Education and Training Learners,unpuplished thesis,** University of Pretoria, South Africa .

National Research Council (NRC). (2008).**Inquiry and the National Science Education Standards, A Guide for Teaching and Learning.** Washington, D.C.: National Academy Press.

National Research Council (NRC). (1996). **National Science Education Standards.** Washington, D.C.: National Academy Press.

National Science Resources Center (NSRC). (1997). **Science for All Children: A Guide to Improving Elementary Science Education in Your School District.** Washington, D.C.: National Academy Press.

National Science Teachers Association. (2003). **Standards for Science Teacher Preparation, Arlington, VA:** National Science Teachers Association.

Nuangchalerm, P. & Thammasena, B. (2009). Cognitive Development, Analytical Thinking, and Learning Satisfaction of Second Grade Students learned through Inquiry-based Learning. **Asian Social Science**, Vol. 5, No. 10 , 82-87.

Opara, J. & Oguzor, N. (2011) . Inquiry Instructional Method and the School Science Curriculum, **Current Research Journal of Social Sciences**, 3(3), 188-198.

Osborne, J., Simon, S., & Collins, S. (2003). Attitudes toward science: A review of the literature and its implications. **International Journal of Science Education**, 25, 1049- 1079.

Sanderson, Barbara A. & Kratoch, Daniel W. (1971): Science – A Process Approach, Product Development Report No.8, **ERIC No. (ED064066)**.

Saribas D. & Bayram H. (2009). Is it possible to improve science process skills and attitudes towards chemistry through the development of metacognitive skills embedded within a motivated chemistry lab?: a self-regulated learning approach. **Procedia - Social and Behavioral Sciences**, Vol.(1), Issue (1), pp. 61–72.

Turpin T. & Cage B. N.(2004). The Effects of an Integrated, Activity-Based Science Curriculum on Student Achievement, Science Process Skills, and Science Attitudes. **Electronic Journal of Literacy through Science**, Vol. (3), No.(3). Retrieved 10/4/2012 from: <http://ejlts.ucdavis.edu/archive>.

Wu, H.-K., & Hsieh, C.-E. (2006). Developing Sixth Graders' Inquiry Skills to Construct Scientific Explanations in Inquiry-based Learning Environments, **International Journal of Science Education**, Vol. 28, No. 11, pp. 1289–1313.

: (1)



/

: /

:

"

-1

"

(25)

-2

-3

-4

(45)

-5

-6

(×)

:

:

-1

-

-



-

(×)

()

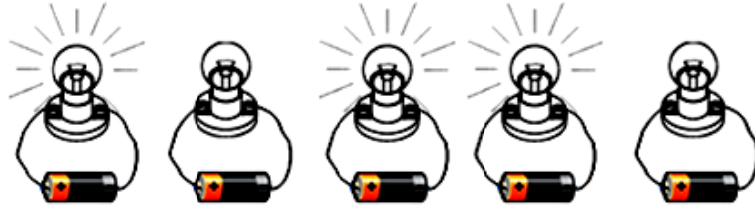
:

		×		

:

:

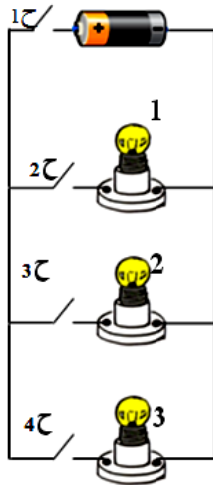
-1



-
-
-
-

(3) (1)

-2



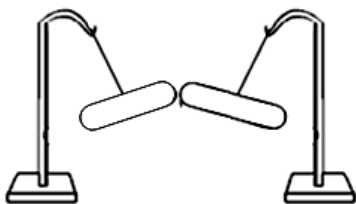
(2)

(1)

(2)

-
-
-

-3



-
-
-
-

-4

-
-

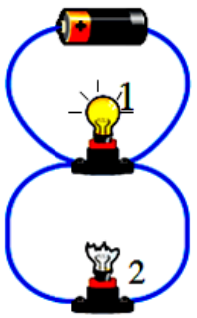
-
-

-5



-
-
-
-

-6



(2)

(1)

(2)

-
-
-
-

()

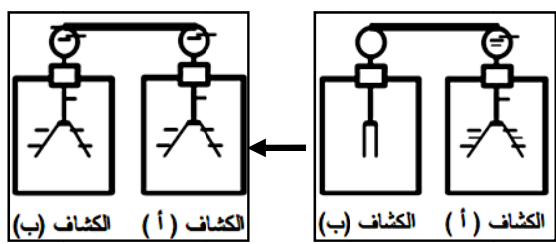
()

-7

()

(1)

(2)



(2)

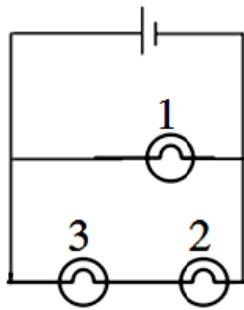
(1)

-
-
-
-

-8

-
-

-9



(2)

(3)

(1)

(3)

(1)

-

-

-

-

-10

:

-
-

-11



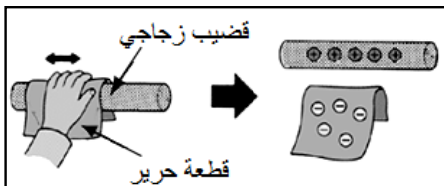
-

-

-

-

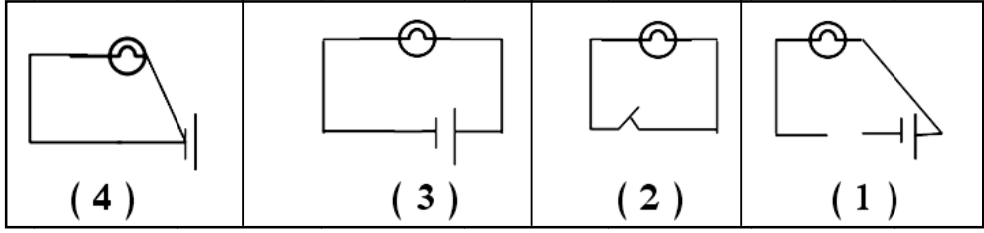
-12



-

-

-
-
-13



(2) - (1) -
(4) - (3) -

-14

-
-
-
-

-15

-
-
-
-

-16

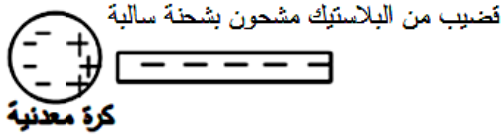
-

-

-

-

-17



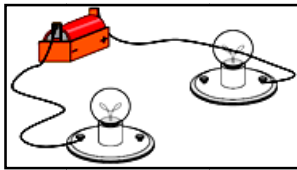
-

-

-

-

-18



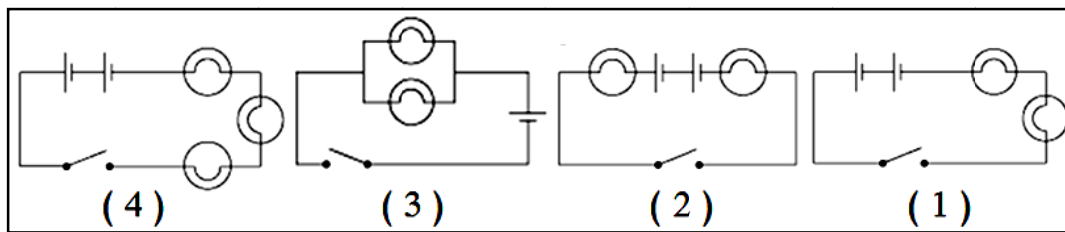
-

-

-

-

-19



(2)

-

(1)

-

(4)

-

(3)

-

-20

()

-

-

-

-

-21

()

-

-

-

-

-22

-

-

-

-

-23

-

-

-

-

-24

-

-

-

-

-25

-

-

-

-

ورقة الإجابة

..... : /
..... :
..... :

الجنس : ذكر أنثى

د	ج	ب	أ	رقم السؤال
				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

(2):

د	ج	ب	أ	عمليات العلم	رقم السؤال
×				الملاحظة	1
	×			التنبؤ	2
		×		الاستدلال	3
×				الاستدلال	4
		×		التنبؤ	5
	×			الملاحظة	6
	×			الاستدلال	7
×				التصنيف	8
		×		التنبؤ	9
×				التصنيف	10
		×		التفسير	11
		×		التفسير	12
	×			التواصل	13
			×	التفسير	14
	×			فرض الفروض	15
×				التعريف الإجرائي	16
	×			التعريف الإجرائي	17
×				الملاحظة	18
	×			تواصل	19
		×		تحديد المتغيرات	20
	×			تحديد المتغيرات	21
		×		ضبط المتغيرات	22
			×	فرض الفروض	23
	×			التجريب	24
			×	التجريب	25

/

:(3)

..... : /	
..... :	
..... :	
الجنس : <input type="checkbox"/> ذكر <input type="checkbox"/> أنثى	

: /

(28)

(x)

	x		

:

" "

				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

/ :(4)

..... :	/
..... :	
..... : :

: /

(32)

(x)

-
-
-
-
-
-
-
-

	x		

:				
				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

:(5)

دليل المعلم

" "

:

2012/2011

:

" "

:

: /

" "

.

.

:

() ()

(21)

:

2				
2				
2				
2				
2				
2				
2				
4				
3				
2				

.()

:

: -1

-2

-3

-4

-5

-6

-7

-8

-9

-10

/

				*			-
					*		-
				*			-
				*			-
					*		-
	*						-
			*				-
				*			-
				*			-
				*			-()
		*				()	-
				*			-

				*			-
				*			-
				*			-
				*			- أن
		*					-
	*						-
*							-
			*				-
				*			-
				*			-
		*					-

*							-
				*			-
	*						-

/

-)	-	
			(
				-	
		-	(+)	-	
				-	
				-	
			()	-	
				-	
				-	
				-	
				-	
				-	
				-	
				-	
				-	
				-	
				-	

	-		-		
	-		-		
	-		-		
	-		-		
	-		-		
	-		-		
	-		-		
	-		-		
	-		-		
	-		-		

:

:

-1

-2

-3

:

:

:

:

-1

:

-2

:

-3

:

-4

:

-5

: -6

: -7

:

-

-

.()

-

-

-

-

: -8

:

: -9

: -10

: :
 :
 : -1
 .
 () : -2
 .
 : -3
 .
 : -4
 :
 : -
)
 .(
 : -
)
 .(
 : -
 ()
 (Fair test)
 ()
 .(Fair testing)

)

:(

-5

-6

-7

-8

-9

-1

-2

-3

-4

:

:

:

:

-

:

.

:

:

.

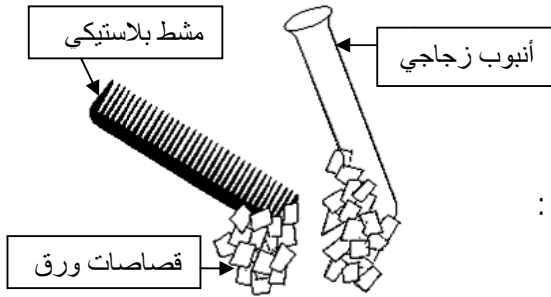
:

.

:

	:
	:
	.

-	:
-	:



:
:
-1
:
-
-
:
-1
:
-

::
.....: (1) -:
.....:

:
-1

:
:
.....:
.....:

:
:
-1

.....:
.....:
.....:

-2

.....

.....

.....

-3

.....

.....

:

:

	-1
	-2
	-3

:

.....

.....

.....

:

.....

(1) -

:

-1

:

:

.

:

.

:

-1

.

.

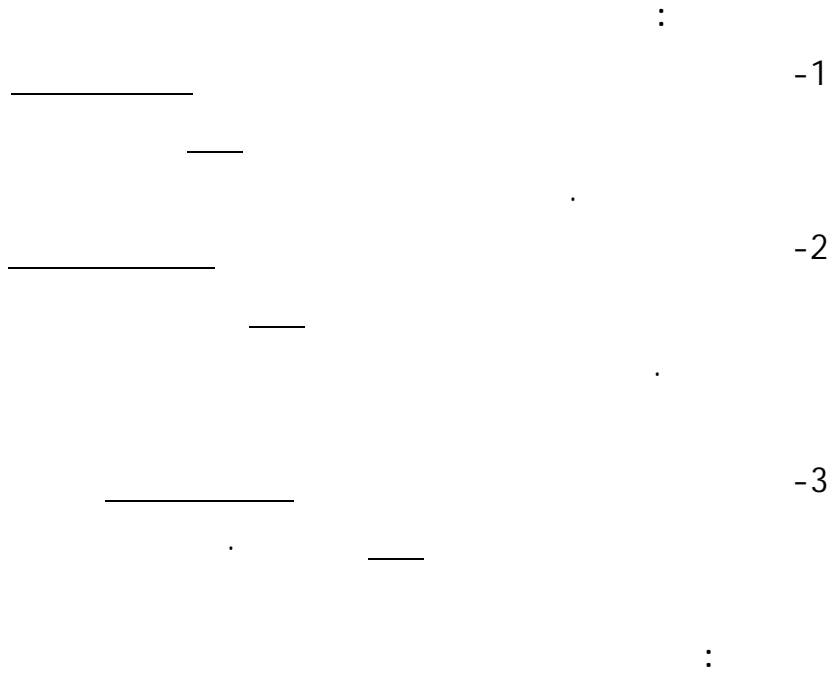
.

-2

-3

:

	_____	_____		
	_____	_____		
	_____	_____		



:

:

:

-1

-2

-3

:

:

:

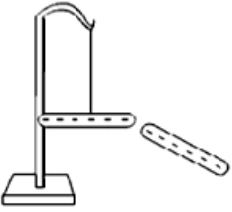
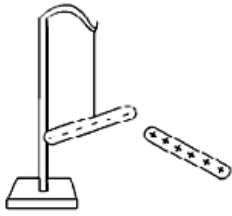
:

:

	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">)</p> <p style="text-align: right;">.() (-</p> <p style="text-align: right;">.()) -</p> <p style="text-align: right;">.() -</p>

-	:
	:
-	:
-	:

-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p>
-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p>
-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">.</p> <p style="text-align: right;">-1)</p> <p style="text-align: right;">-</p> <p style="text-align: right;">.<!--(-)</p--> <p style="text-align: right;">-</p> <p style="text-align: right;">.(+)</p> <p style="text-align: right;">-2</p> <p style="text-align: right;">.<!--(</p--> <p style="text-align: right;">:</p> </p></p>
-	<p style="text-align: right;">:</p>



:
:
-1
:
-2
:
-3
:
-1
:
-2
:
-3

.....: (2) -:

:
-1
-2
-3

:
:
.....
.....

:
:
-1
-2



.....
-3
.....
-4
.....

:

				2
				3
				4

:

.....

-1

.....

-2

.....

.....

-3

.....

.....

:

.....

.....

.....

.....

.....

:

.....

(2) -

:
-1
-2
-3

:

:

:

:



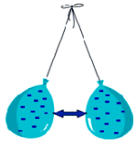
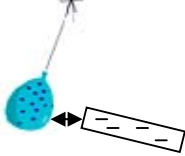
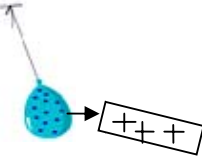
-1

-2

()
-3

-4

:

_____				2
_____				3
	_____			4

:

1

—

-2

-3

:

-1

.(-)

:

-

-

.(+)

-2

:

:

:

:

:

-1

-2

-3

-4

.()

: ()

()

:

:

:

:

:

	:
	:
	-

-	:
	: : :
-	: : : : : * - -
-	: : : (3)

-	.
-	: :
-	: :
-	: : -1)
-	.(() -2
-	.(: .
-	:

--	--

:

:

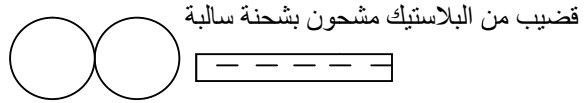
() :

(1)

()		

_____ (2)

-1

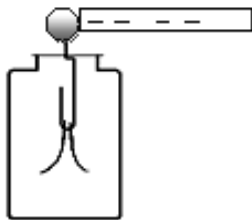


(2) (1)

-

-

-

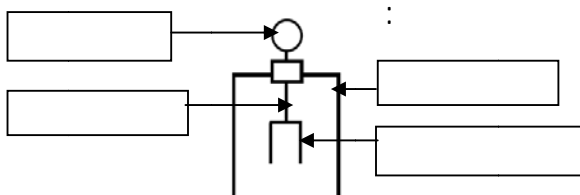


(3)

(4)

()

(5)

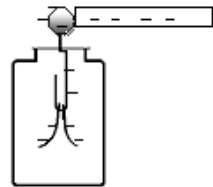


:

(1)

()		

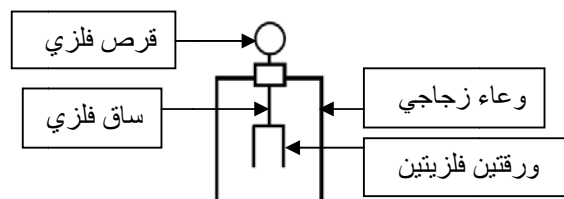
() (2)



(3)

: - (4)

:() -



(5)

.....: (3) -:

.....: -1
: -2
: () -3
: -4

.....: -1
: -2

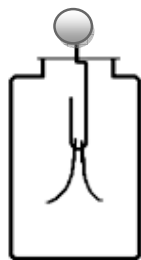
.....

.....:

.....: -1
: -2

(1)

.....: (1 x 2) -3



-4

-5

-6

.....

-7

.....

-8

.....

-9

.....

:

		6
		7
		8
		9

:

.....

-1

.....

.....

.

.....

-2

.....

.....

:

.....
.....
.....
.....
.....
.....

:

.....
.....
.....

(3) -

:

-1

-2

-3

-4

:

-1

-2

:

-1

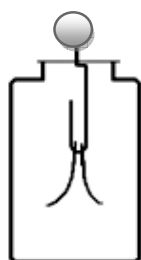
-2

:

-1

-2

(1)



(1 x2)

-3

-4

-5

-6

.()

-7

-8

.()

-9

:

		6
		7
		8
		9

:

1

—

—

—

-2

—

()

—

:

-1

.()

-2

:

-

-

	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">-1</p> <p style="text-align: right;">-2</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p>
-	:

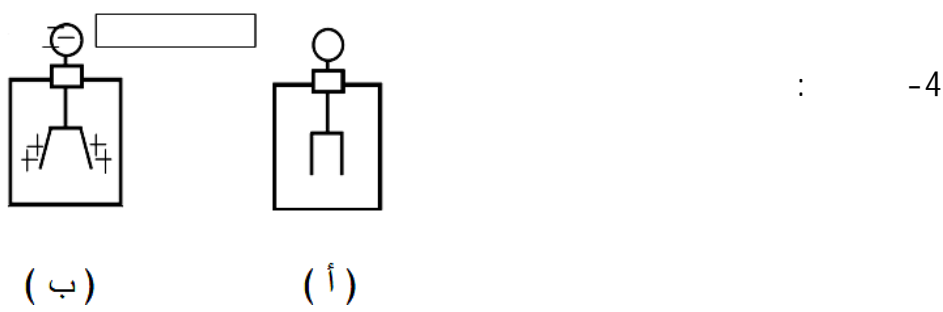
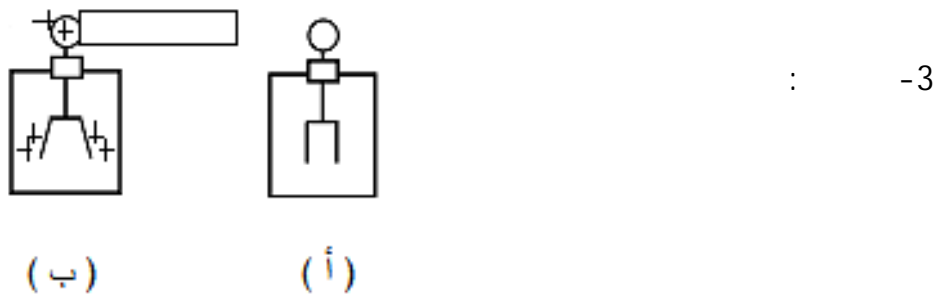
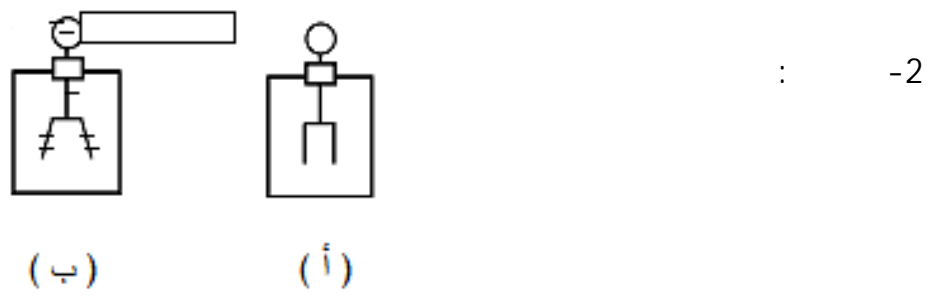
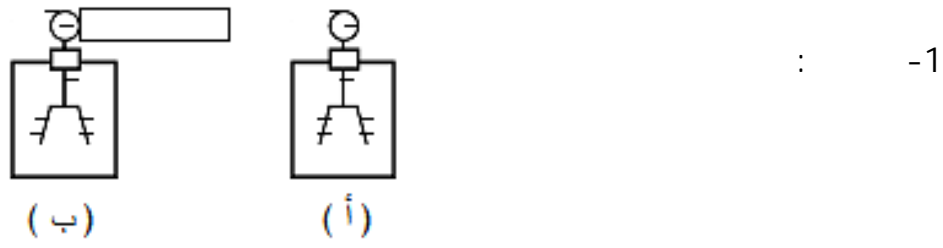
	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: center;">:</p>
-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">*</p> <p style="text-align: right;">-</p> <p style="text-align: right;">-</p>
-	<p style="text-align: right;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">(4)</p>
-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: center;">.</p>

-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p>
-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">.</p> <p style="text-align: right;">-1)</p> <p style="text-align: right;">-2</p> <p style="text-align: right;">-3</p> <p style="text-align: right;">.(</p> <p style="text-align: right;">:</p>
-	<p style="text-align: right;">:</p>

:

:

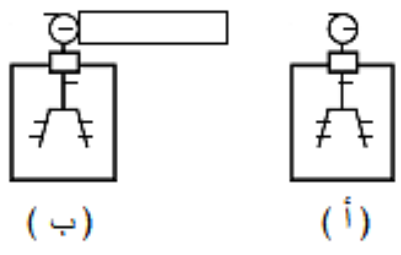
:() -(1)



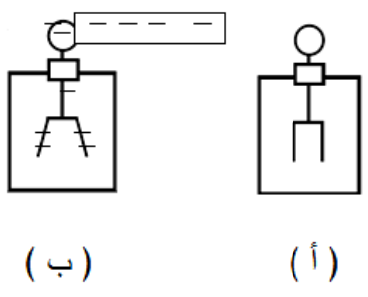
:

(1

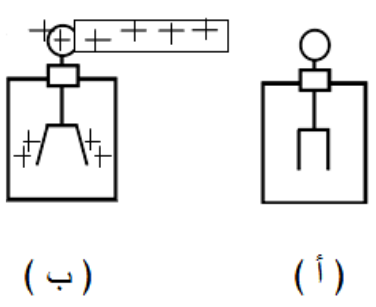
: -1



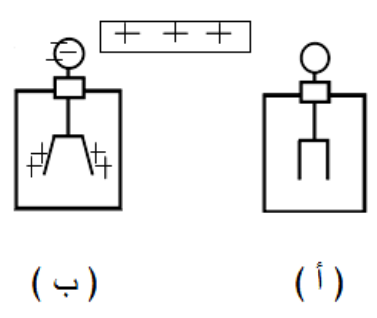
: -2



: -3



: -4



()

.....::	
.....:	(4) -	:
<hr/>		
	:	
		-1
		-2
	:	
	:	
.....		-1
.....		
.....		-2
.....		
	:	
.		
	:	
.....		-1
.....		
.....		-2
	(20)	-3
.....		
	(30)	-4
.....		
		-5
.....		

:

		1
		2
	(20)	3
	(30)	4
		5

:

.....		-1
	
(20)		-2
.....	
	
(30)		-3
.....	
		-4
	
	
	

:

.....
.....
.....
.....
.....
.....

:

.....
.....
.....
.....

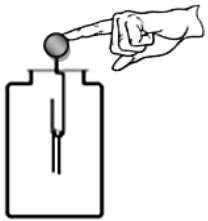
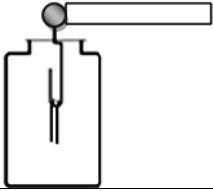
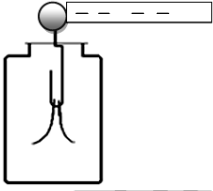
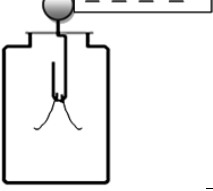
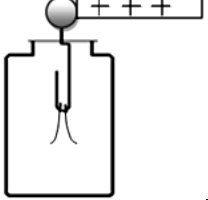
(4) -

	:	
.		-1
.		-2
	:	
	:	
		-1
	.	
		-2
	.	
	:	
.		
	:	
_____	.	-1

_____		-2
	(20)	-3

(30)		-4

:

		1
		2
	(20)	3
	(30)	4
		5

:

(20)

-2

(30)

-3

.

-4

.

:

-1

.

-2

.

-3

.

:

.

-

.

-

.

:

.

:

:

-1

-2

.
.

:

.

:

:

.

:

.

:

	<p>:</p> <p>:</p> <p>:</p> <p>.</p>

-	:
-	:
-	:

:

:

-1

-2

:

-3

.....::

.....: (5) - :

:

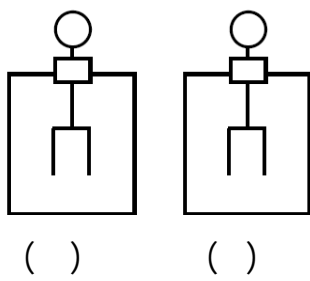
-1

-2

:

:

.....:



-1

-2

-3

..... ()

(3)

-4

:

()	

:

..... () -1

.

..... () -2

.

:

.....
.....
.....
.....

:

.....
.....

(5) -



:

-1

-2

:

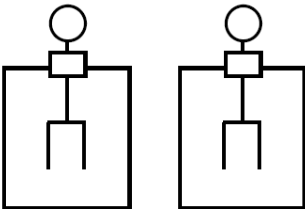
:

:

:

-1

-2



()

()

.()

-3

_____ ()

(3)

-4

:

()	

:

_____ () -1
_____ () -2

:

-

:

:

.

:

:

-1

:

.

:

:

.

:

.

:

	<p>:</p> <p>:</p> <p>.</p> <p>:</p>

-	
	:
	-1
	-2
-	:
	:
	:
	-1
	-2
	:
-	:
	(6)
-	
-	

-	:
-	:
-	:
-	:

100

:

:

-1

(×) (√) -2

- ()

- ()

- ()

-3

.....::
: (6) - :

:
 -1
 :
 -1
 -2

.....
 :
 :
 -1
 :
 -2

:

.....

-1

.....

.

.....

:

..... -1

.....

.....

.....

.....

..... -2

.....

.....

.....

:

.....

.....

.....

.....

(6) -

..... :

..... -1

..... :

..... -1

..... -2

..... :

..... -1

..... -2

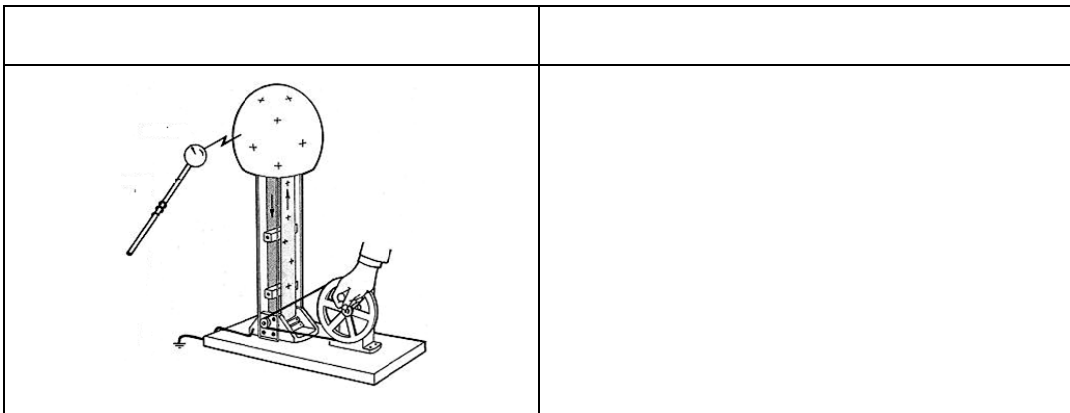
..... :

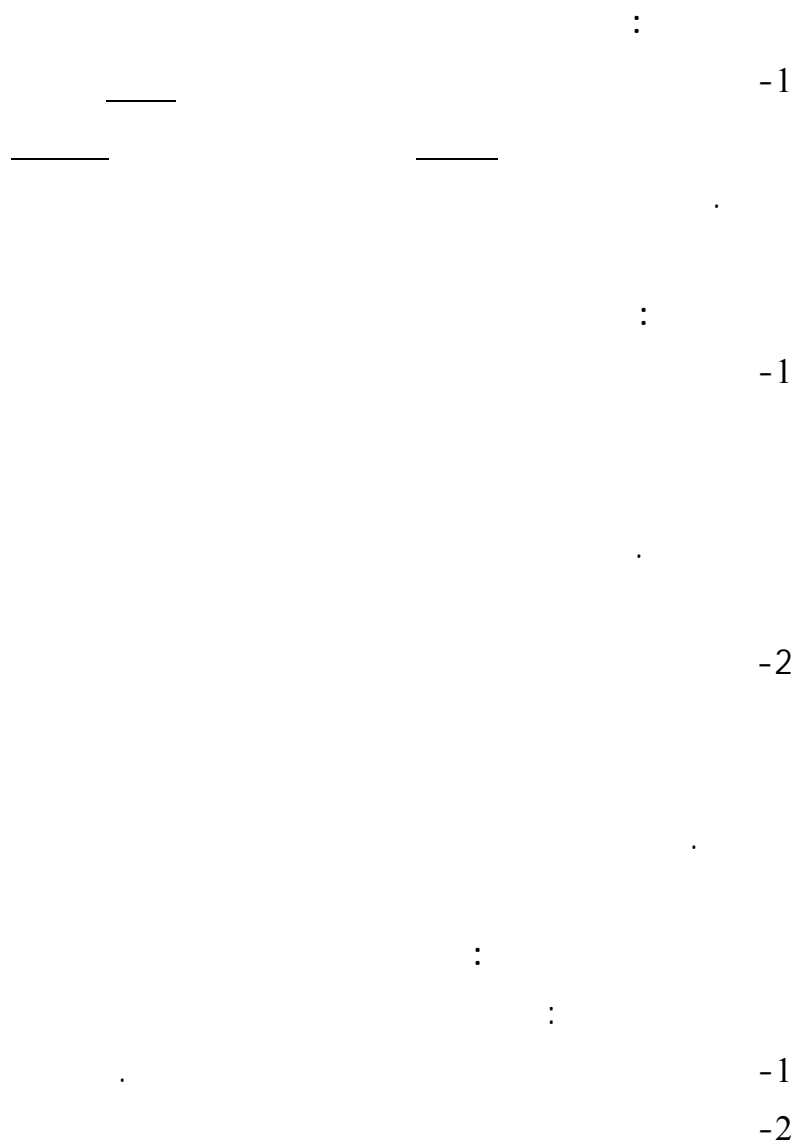
..... -1

.....) -2

..... (

..... :





:

:

:

:

-1 أن

-2

-3

-4

-5

-6

:

:

:

:

:

	-

	<p style="text-align: center;">:</p> <p style="text-align: center;">)</p> <p style="text-align: center;">.(</p> <p>.()</p> <p style="text-align: center;">:</p> <p style="text-align: center;">-</p> <p>)</p> <p style="text-align: center;">.()</p> <p style="text-align: center;">)</p> <p style="text-align: center;">(</p> <p style="text-align: center;">.(</p> <p style="text-align: center;">)</p> <p style="text-align: center;">.(</p> <p style="text-align: center;">.</p> <p style="text-align: center;">.</p> <p>-)</p> <p style="text-align: center;">.</p> <p style="text-align: center;">.(</p> <p>-</p> <p style="text-align: center;">.()</p> <p style="text-align: center;">.</p>
	<p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p>()</p>

	<p style="text-align: right;">):</p> <p style="text-align: right;">.(</p> <p style="text-align: center;">:</p> <p style="text-align: right;">-1</p> <p style="text-align: right;">-2</p> <p style="text-align: right;">-3</p> <p style="text-align: right;">-4</p>
-	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: center;">.</p> <p style="text-align: center;">.</p> <p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: right;">-1</p> <p style="text-align: right;">-2</p> <p style="text-align: right;">-3</p> <p style="text-align: right;">-4</p> <p style="text-align: right;">:</p>

		:	
		:	
	.		
	:		
-		:	-
	.()	
) :		
(:	-
	.()	
	.()	
	:		-
	.		
		:	
)		
		.(
		:	-
.			
	:		-
.			
		:	*
	.		

	:
-	:
-	
-	:
-	:
-	:
-	:
-	:
-	:

:

:

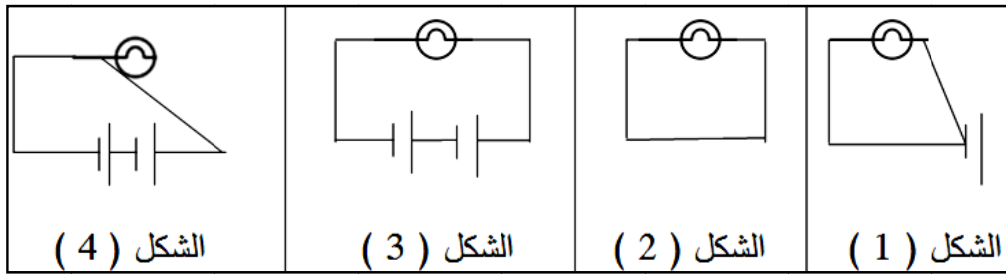
:

-1

:

-2

-3



:

: -1

: -

) : -

(

-2

	()	
...		

:(1) -3

.() :(2)

:(3)

:(4)

.....:					
.....:	(7)	-		:	
					:
					-1
					-2
					-3
					-4
				:	
				:	
				:	
					-
				:	
					-
				:	
					-
				:	
					-
				:	
					-
				:	
					-

: : -

4	3	2	1	

:

		1
		2
		3
		4

:

- : (/) -1
-
- : (/) -2
-
- : (/) -3
-
- : (/) -4

.....

:

.....

.....

.....

:

.....

.....

(7) -

:

-1

-2

-3

-4

:

:

:() :

:





:

:

(2)

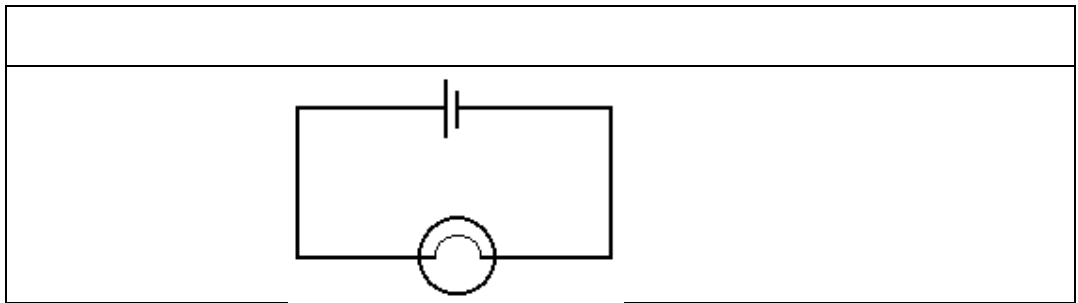
:

:

				
4	3	2	1	

:

	_____	1
	_____	2
_____		3
	_____	4



:

: () -1

: () -2

: () -3

: () -4

:

:

.....::
: (8) - :

: -1

:
 :

.....:

: -

: -

: -

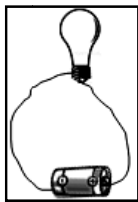
.....:

: -

.....:

.....:

: -
 -1



: -
 -2

.....:

:

:

.....

-1

.....

.....

-2

.....

:

.....

.....

:

.....

.....

(8) -



:

-1

:

:

:

.()

:

-

-

:

-

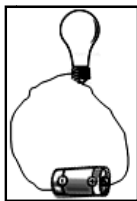
:

-

:

-

-1

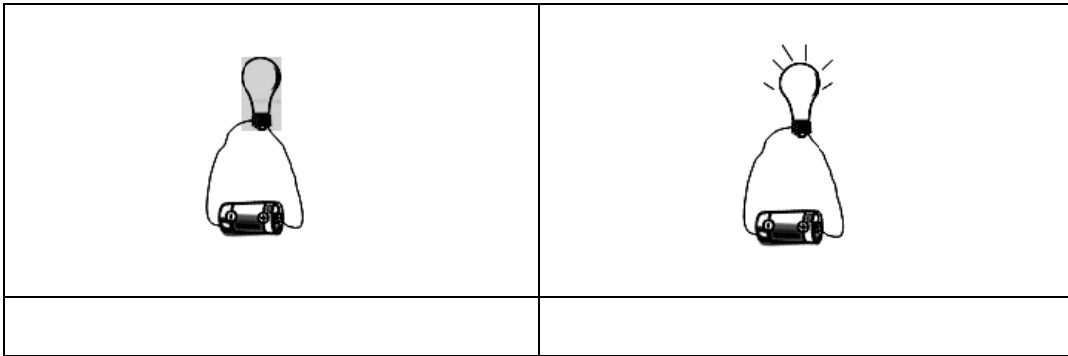


.()

-2

.()

:



:

-1

-2

:

:

.....::
: (9) - :

.....::
: -1

.....::
:

.....::
: -

.....::
: -

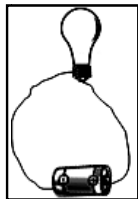
.....::
: -

.....::
:

.....::
: -

.....::
:

.....::
: -



.....::
: -1

.....::
: -2

.....:

:

:

.....

-1

.....

.....

-2

.....

:

.....

.....

:

.....

.....

(9) -



:

-1

:

:

:

()

:

-

-

:

-

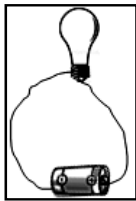
:

-

:

-

-1

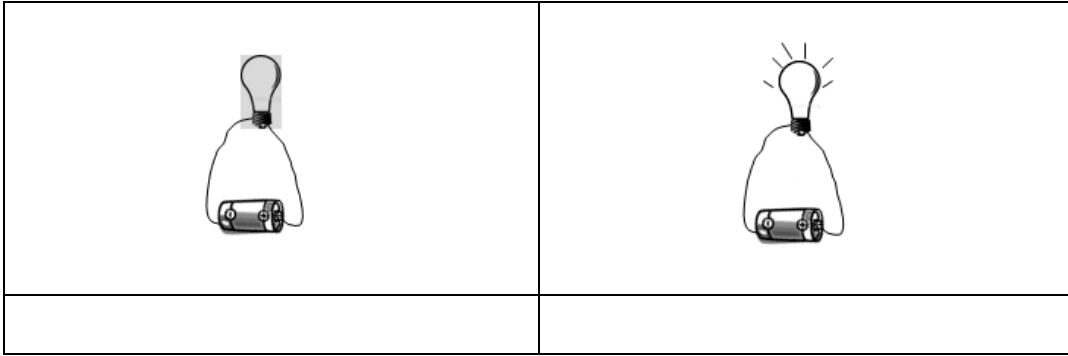


()

-2

()

:



:

-1

-2

:

:

.....::
.....: (10) - :

.....::
.....: -1

.....::
.....:

.....::
.....: -

.....::
.....: -

.....::
.....: -

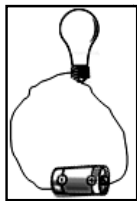
.....::
.....:

.....::
.....: -

.....::
.....:

.....::
.....: -

.....::
.....: -1



.....::
.....: -2

.....:

:

:

.....

-1

.....

.....

-2

.....

:

.....

.....

:

.....

.....

(10) -

:

-1

:

:

:

.()

:

-

:

-

:

-

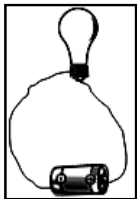
:

-

:

-

-1

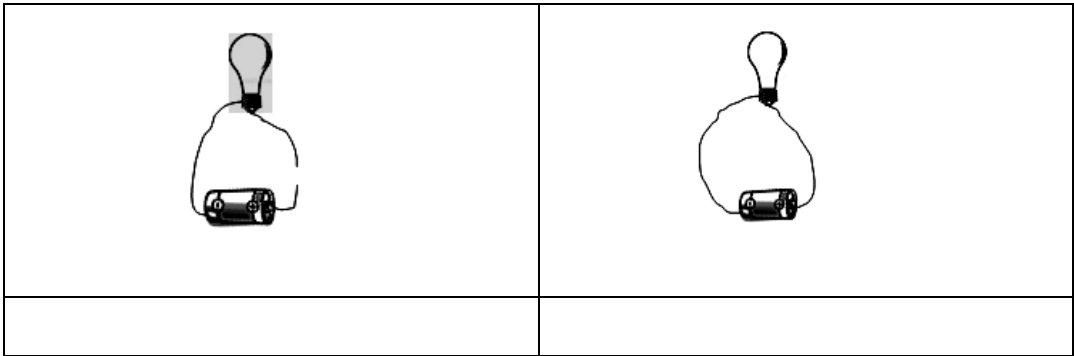


()

-2

()

:



:

-1

-2

:

:

-	:
	: -1 -2
-	: : : : -1 -2 :
	: :

	<p style="text-align: center;">.</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">.()</p> <p style="text-align: center;">):</p> <p style="text-align: center;">.(: :</p> <p style="text-align: center;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">.(:)</p> <p style="text-align: center;">.(:)</p> <p style="text-align: center;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">)</p> <p style="text-align: center;">:</p> <p style="text-align: center;">.(:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">.</p> <p style="text-align: center;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">:</p> <p style="text-align: center;">*</p>
--	--

	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">-</p>
	<p style="text-align: right;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">-</p>
	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">.</p>
	<p style="text-align: right;">:</p> <p style="text-align: right;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">-</p> <p style="text-align: center;">.</p> <p style="text-align: center;">:</p> <p style="text-align: center;">.</p>
	<p style="text-align: right;">:</p> <p style="text-align: center;">-</p> <p style="text-align: center;">.</p>

:

:

:

-1

-2

-3

-

-4

-5

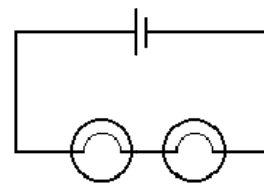
-

-1

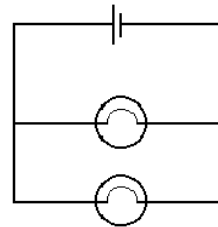
-

-2

-3



-



-

-4

.....::
: (11) - :

:
 -1
 -2

:
 -1
 -2

:
 -1
 -2

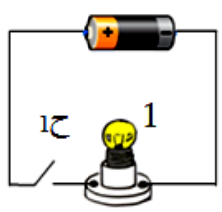
:
 : -
 : -
 : -
 : -

(2)

(5)

(5)

(4)



()

(1)

()

..... (1)

: -
 -1

(1) (1) -2

.....

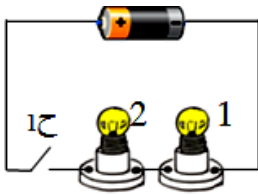
-3

(1) ()

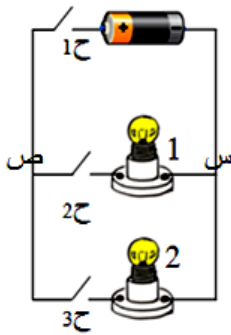
(2)

.....

() -4



()



()

(3) (2) (1) -5

.....

(2) (3) (1) -6

.....

(3) (2) -7

.....

(1) -8

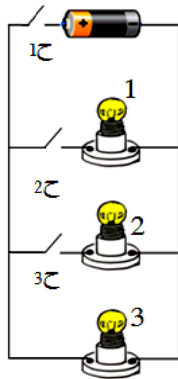
.....

(2) -9

.....

() (3) -10

.....



()

:

	(2)	(1)			
	—		(1)	1	()
	—		(1)	2	
			(1)	3	

	(3)	(2)	(1)		
	—			4	()
	—		(2) (1)	5	
	—		(3) (1)	6	
	—		(3) (2)	7	
	—		(1)	8	
	—		(2)	9	
			(3)	10	

:

(2) (1) -1

..... ()

.

() (2) (1) -2

.....

.....

.....

() : ()

.....

.....

.....

:

.....

.....

.....

.....

:

.....

.....

.....

(11) -

:

-1

-2

:

-1

-2

:

-1

-2

:

-

-

-

-

:

-

-1

(2) (5) (5) (4)

:

-

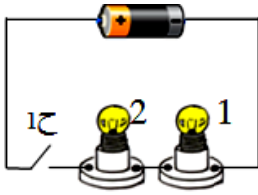
-1

() (1) () (1)

() .()



(1)



()

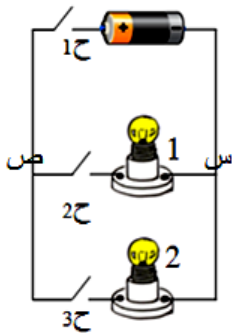
(1) (1) -2
 .() ()

-3

(1) ()

(2) .()

() -4



()

.((2) (1))
 (3) (2) (1) -5

.((1))

(2) (3) (1) -6
 .((2))

(3) (2) -7

.((2) (1))

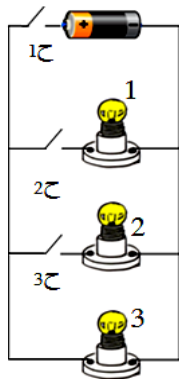
(1) -8

.((2))

(2) -9

.((1))

() (3) -10



()

.()

:

	(2)	(1)			
	—		(₁)	1	()
	—		(₁)	2	
()			(₁)	3	

	(3)	(2)	(1)		
	—			4	()
	—		(₂) (₁)	5	
	—		(₃) (₁)	6	
	—		(₃) (₂)	7	
	—		(1)	8	
	—		(2)	9	
			(3)	10	

:

(2) (1) -1

_____ ()

() _____ (2) (1) -2

_____ (1) _____

_____ () _____

(1) _____ (2) _____

:

-1

-2

-3

:

:

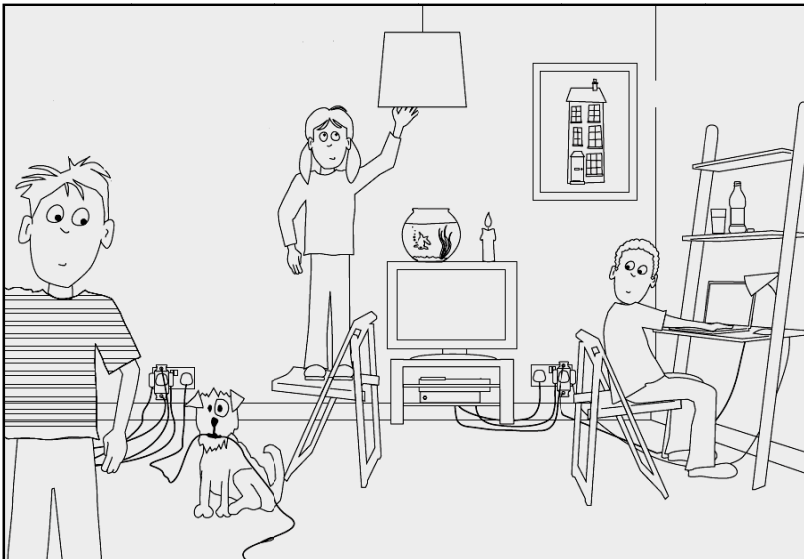
:

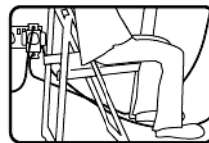
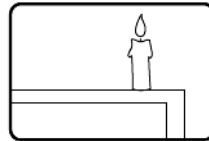
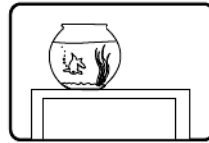
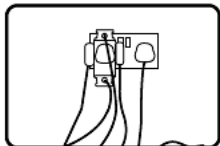
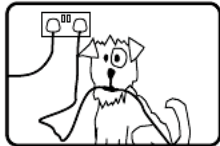
-	:
-	:
-	:

:

:

-2





-2

-3

-

-1

.....::
: (12) -:

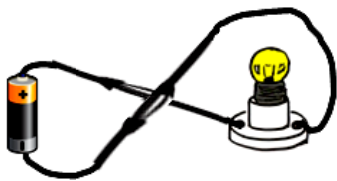
 :
 -1
 :
 -
 :

.....:
 (2) (2) (2)



()

.....:
 () -1



()

.....:
 () -2

:

()	()	

:

..... ()

-1

.....

..... ()

-2

.....

.....

.....

.

:

.....

.....

:

.....

(12) -

:
-1

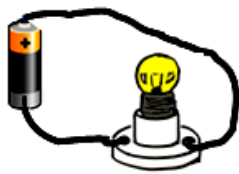
:
-

:
-

:
(2)

(2)

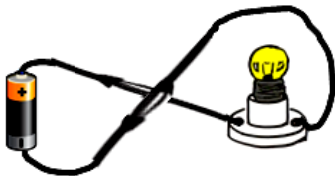
(2)



()

()

:
-1
()



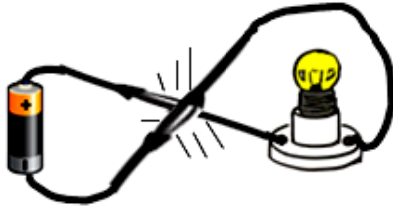

()

-2

()

()

:

()	()	
		

:

___ ()

-1

___ ()

-2

:

-1

:

-	-	-	-	
	-	-	-	
	-	-	-	
-	-	-	-	()
-				
-	-		-	

-	-			()
	-		-	
			-	
			-	
			-	
			-	
	-	-	-	
-	-		-	

-	-	-	-	
	-	-	-	
	-	-	-	
-	-	-	-	
-	-	-	-	
	-	-	-	

-	-	-	-	
		-	-	
-	-	-	-	
-		-	-	

-	-	-	-	
	-	-	-	

(1)	(2)	(3)	(4)	
				()
				المجموع: 40 درجة

المعايير	ممتاز	جيد جدا	جيد	ضعيف
1- التعاون مع أفراد المجموعة أثناء العمل	يعمل بشكل فاعل كجزء من فريق، يستمع ويشترك ويساعد ويدعم جهود الآخرين ويحترم وجهات نظرهم وأرائهم، ويحاول أن يجعل الآخرين يعملون معا	بشكل عام يتعاون مع الآخرين معظم الوقت، يستمع ويشترك ويساعد ويدعم جهود الآخرين ويحترم وجهات نظرهم وأرائهم	يستطيع أن يتعاون مع الآخرين ويحترم وجهات نظرهم لكن قد يحتاج بعض الأحيان إلى التذكير بضرورة التعاون .	لا يتعاون مع الآخرين ولا يحترم اختلاف وجهات النظر ولا يتمتع بروح العمل كفريق
2- التركيز على المهمة	يركز على المهمة الموكلة إليه وما يجب القيام به من خطوات للوصول إلى الهدف ويتمتع بالمسؤولية الفردية	يركز على المهمة وما يجب القيام به من خطوات معظم الوقت ويتمتع بالمسؤولية الفردية	يحتاج إلى تذكير بالمهمة والخطوات المطلوبة لإنجازها	لا يركز على الهدف والمهمة المطلوبة ويجعل الآخرين يقومون بالعمل بدلا عنه
3- جودة العمل	ينتج عمله بكفاءة عالية وبشكل مستقل ويساعد الآخرين في اتقان عملهم	ينتج عمله بكفاءة واثقان	عمله يحتاج إلى مراجعة وتدقيق وتعديل من قبل أعضاء المجموعة	لا ينجز عمله باثقان ويحتاج أفراد مجموعته إلى إعادة عمله مرة أخرى
4- إدارة الوقت	لا يماطل في عمله ، يدير وقته بكفاءة وبشكل مستقل ويذكر الآخرين بضرورة الالتزام بالوقت وينجز مهمته في الوقت المحدد مما يجعل مجموعته تنتهي عملها بالوقت المحدد	لا يماطل في عمله، ولا تحتاج مجموعته إلى وقت إضافي لإنجاز المهمة	يماطل في إنجاز عمله ويحتاج إلى تذكير بضرورة الالتزام بالوقت المحدد مما يجعل مجموعته تحتاج أحيانا إلى وقت إضافي لإنجاز المهمة	لا ينجز عمله في الوقت المحدد ويماطل كثيرا في إنجازها مما يستدعي التدخل وإنهاء عمله و طلب وقت إضافي لإنهاء المهمة
5- الهدوء وانخفاض الصوت	يتحدث بصوت منخفض مع الآخرين ويصغي إلى حديثهم باهتمام ويتحرك بشكل هادئ في المختبر	يتحدث بصوت منخفض مع المحافظة على الهدوء في العمل معظم الوقت ويصغي إلى الآخرين	يحتاج إلى تذكير بضرورة خفض الصوت والإصغاء للآخرين والعمل بهدوء داخل المختبر	يتحدث بصوت عال ويثير الضجيج والفوضى ولا يصغي للآخرين.
6- الحفاظ على السلامة العامة في المختبر	يتبع قوانين السلامة العامة في المختبر ويظهر مسؤولية كبيرة اتجاه الحفاظ على سلامة الآخرين والبيئة	يتبع قوانين السلامة العامة في المختبر معظم الوقت ويظهر مسؤولية اتجاه الحفاظ على سلامة الآخرين والبيئة	يحتاج إلى تذكير بقوانين السلامة العامة في المختبر ويظهر بعض المسؤولية اتجاه الحفاظ على سلامة الآخرين ولكن لا يسبب الأذى للآخرين أو البيئة	لا يتبع قوانين السلامة العامة في المختبر ولا يظهر أي مسؤولية اتجاه الحفاظ على سلامة الآخرين مما يسبب الأذى لنفسه و الآخرين وللبيئة المحيطة

المعايير	ممتاز	جيد جدا	جيد	ضعيف
7- استخدام أدوات ومعدات المختبر	يستخدم أدوات ومعدات المختبر بكفاءة ومهارة عالية وبشكل مستقل ويعيد كل شيء إلى مكانه بعد الاستعمال	يستخدم أدوات ومعدات المختبر باتقان لكن يحتاج إلى توجيهه من وقت لآخر ويعيد كل شيء إلى مكانه بعد الاستعمال	يحتاج إلى توجيه وإشراف عند استخدام الأجهزة وأحيانا لا يعيد كل شيء إلى مكانه بعد الاستعمال	لا يستطيع استخدام الأجهزة في المختبر بشكل لائق وكفؤ و لا يعيد كل شيء إلى مكانه بعد الاستعمال

ضعيف 1	جيد 2	جيد جدا 3	ممتاز 4	المعايير
				1- التعاون مع أفراد المجموعة أثناء العمل
				2- التركيز على المهمة
				3- جودة العمل
				4- إدارة الوقت
				5- الهدوء وانخفاض الصوت
				6- الحفاظ على السلامة العامة في المختبر
				7- استخدام أدوات ومعدات المختبر
				المجموع : 28 درجة

:(6)



/

/

.....

/

"

"

:

-

-

-

-

-

-

-

-

"

"

:(7)

-	√	√		.	1
-	√	√		.	2
-	√	√		.	3
√	√	√		.	4
-	√	√		.	5
-	√	√		.	6
√	-	√	(/)	.	7
-	-	√	(/)	.	8
√	-	√	/	.	9
-	-	√	/	.	10
-	-	√	/	.	11

(8):

السلطة الوطنية الفلسطينية
Ministry of Education & Higher Education
Directorate of Education Ramallah & AL-Bireh

السلطة الوطنية الفلسطينية
وزارة التربية والتعليم العالي
مديرية التربية والتعليم / رام الله والبيرة

الرقم: 4620/1/3
التاريخ: 26 / 3 / 2012م
التاريخ: 3 / 5 / 1433هـ

مديري ومديرات المدارس الحكومية لمحافظة رام الله والبيرة المحترمين
سنة طيبة وبعد،،،

الموضوع: تسهيل مهمة
الإشارة: كتاب معالي وزيرة التربية والتعليم العالي
رقم: وت/ 1049/46/4 بتاريخ 2012/3/22م

لا مانع من قيام السادة "عبد داود عزمي" سليمان حسيبي" من إجراء دراستها الميدانية بعنوان أثر استخدام الشبي
الاستقصائي العملي في تدريس العلوم على تنمية عمليات التعلم لدى طلبة الصف السادس الأساسي والتأهيل نحو العلوم " وعبارة
الاستبيانات المرفقة من قبل طلاب وطالبات الصف المذكور في مدارسكم بالإضافة إلى إتساح المجال لتساخته بتطبيق المقاس الخاص
بالدراسة حسب الحاجة ، على أن لا يؤثر ذلك على سير العملية التعليمية
ملاحظة: هذا الكتاب ساري المفعول داخل المدارس التابعة لمديرية رام الله والبيرة فقط.
(الرجاء تسهيل المهمة)

مع الاحترام،،،

أ. أيوب عليان
مدير التربية والتعليم



نسخة / نائب مدير
نسخة/ نائب الإداري
نسخة/ مدرسة بنات عرب شاهين الثانوية ، مدرسة ذكور أمين الحسيني الأساسية
التعليم العام
م. ع. عبد
عبد

العمارة - رام الله - هاتف (+972-2-2404714/5) Tel. فاكس (+972-2-2404749) Fax رام الله - Ramallah P.O. Box (276)

18		1.2
		2.2
20		-3.2
21		-3.2
80	. 2012 / 2011	1.3
81		2.3
86		3.3
93		4.3
96		1.4
97	(ANCOVA)	2.4
97		3.4
98		4.4
99	(LSD)	5.4
99		6.4

101		7.4
102	(ANCOVA)	8.4
103		9.4

100		1.4

127		1
136		2
137	/	3
140	/	4
143		5
266		6
267		7
268		8

	:	
1		1.1
5		2.1
6		3.1
6		4.1
7		5.1
7		6.1
8		7.1
9		8.1
	:	
11		1.2
12		1.1.2
31		2.1.2
43		3.1.2
53		4.1.2
57		2.2
57	:	1.2.2
62	:	2.2.2
72	:	3.2.2

75		4.2.2
	:	
80		1.3
80		2.3
81		3.3
82		4.3
82		1.4.3
82		1.1.4.3
84		2.1.4.3
84		2.4.3
85		1.2.4.3
87		2.2.4.3
87		3.2.4.3
87		4.2.4.3
88		5.2.4.3
88		6.2.4.3
88		3.4.3
88		1.3.4.3
89		2.3.4.3
89		3.3.4.3
89		4.3.4.3
89		5.3.4.3
90		5.3
92		6.3
93		7.3
94		8.3

	:	
95		1.4
101		2.4
104		3.4
104		1.3.4
105		1.3.4
	:	
106		1.5
112		2.5
116		3.5
117		4.5
118		
124		
127		
269		
271		
272		
273		