

## Fermenting Fuel: Experiment Protocol

### Group 2A

Name: \_\_\_\_\_

Design an investigation that tests the effect of each enzyme as well as a combination of both on the fermentation rate of com. When you have decided what to include in each of your samples, record in the table below.

Record

	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
Amylase (ml)	0.0 ml	1.0 ml	1.0 ml	2.0 ml	0.0 ml
Glucoamylase (ml)	0.0 ml	1.0 ml	1.0 ml	0.0 ml	2.0 ml
pH buffer	1.0 ml	1.0 ml	0.0 ml	1.0 ml	1.0 ml
Yeast (g)	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY
Temp	35 C	35 C	35 C	35 C	35 C

Data Collection: CO<sub>2</sub> produced (ml)

Time (min)	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
0					
3					
6					
9					
12					
15					
18					
21					
24					
27					
30					

## Fermenting Fuel: Experiment Protocol

Group 2B

Name: \_\_\_\_\_

Design an investigation that tests the effect of each enzyme as well as a combination of both on the fermentation rate of com. When you have decided what to include in each of your samples, record in the table below.

Record

	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
Amylase (ml)	0.0 ml	1.0 ml	1.0 ml	2.0 ml	0.0 ml
Glucoamylase (ml)	0.0 ml	1.0 ml	1.0 ml	0.0 ml	2.0 ml
pH buffer	1.0 ml	1.0 ml	0.0 ml	1.0 ml	1.0 ml
Yeast (g)	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY
Temp	30 C	30 C	30 C	30 C	30 C

Data Collection: CO<sub>2</sub> produced (ml)

Time (min)	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
0					
3					
6					
9					
12					
15					
18					
21					
24					
27					
30					

## Fermenting Fuel: Experiment Protocol

Group 2C

Name: \_\_\_\_\_

Design an investigation that tests the effect of each enzyme as well as a combination of both on the fermentation rate of com. When you have decided what to include in each of your samples, record in the table below.

Record

	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
Amylase (ml)	0.0 ml	1.0 ml	1.0 ml	2.0 ml	0.0 ml
Glucoamylase (ml)	0.0 ml	1.0 ml	1.0 ml	0.0 ml	2.0 ml
pH buffer	1.0 ml	1.0 ml	0.0 ml	1.0 ml	1.0 ml
Yeast (g)	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY	1.0 g Red Star DADY
Temp	40 C	40 C	40 C	40 C	40 C

Data Collection: CO<sub>2</sub> produced (ml)

Time (min)	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
0					
3					
6					
9					
12					
15					
18					
21					
24					
27					
30					

## Fermenting Fuel: Experiment Protocol

Group 1A

Name: \_\_\_\_\_

Design an investigation that tests the effect of each enzyme as well as a combination of both on the fermentation rate of com. When you have decided what to include in each of your samples, record in the table below.

Record

	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
Amylase (ml)	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
Glucoamylase (ml)	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
pH buffer	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
Yeast (g)	1.0 g Fleischmann	1.0 g Red Star DADY	1.0 g Ethanol Red	0.5 g Red Star DADY	0.5 g Ethanol Red
Temp	35 C	35 C	35 C	35 C	35 C

Data Collection: CO<sub>2</sub> produced (ml)

Time (min)	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
0					
3					
6					
9					
12					
15					
18					
21					
24					
27					
30					

## Fermenting Fuel: Experiment Protocol

Group 1B

Name: \_\_\_\_\_

Design an investigation that tests the effect of each enzyme as well as a combination of both on the fermentation rate of com. When you have decided what to include in each of your samples, record in the table below.

Record

	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
Amylase (ml)	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
Glucoamylase (ml)	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
pH buffer	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
Yeast (g)	1.0 g Fleischmann	1.0 g Red Star DADY	1.0 g Ethanol Red	0.5 g Red Star DADY	0.5 g Ethanol Red
Temp	30 C	30 C	30 C	30 C	30 C

Data Collection: CO<sub>2</sub> produced (ml)

Time (min)	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
0					
3					
6					
9					
12					
15					
18					
21					
24					
27					
30					

## Fermenting Fuel: Experiment Protocol

Group 1C

Name: \_\_\_\_\_

Design an investigation that tests the effect of each enzyme as well as a combination of both on the fermentation rate of corn. When you have decided what to include in each of your samples, record in the table below.

Record

	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
Amylase (ml)	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
Glucoamylase (ml)	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
pH buffer	1.0 ml	1.0 ml	1.0 ml	1.0 ml	1.0 ml
Yeast (g)	1.0 g Fleischmann	1.0 g Red Star DADY	1.0 g Ethanol Red	0.5 g Red Star DADY	0.5 g Ethanol Red
Temp	40 C	40 C	40 C	40 C	40 C

Data Collection: CO<sub>2</sub> produced (ml)

Time (min)	Test Tube 1	Test Tube 2	Test Tube 3	Test Tube 4	Test Tube 5
5					
10					
15					
20					
25					
30					
35					
40					
45					
50					
55					