



PIQUE MY INTEREST!

In this package, students are encouraged to reflect on how they can make responsible financial decisions by establishing good budgeting habits, and making trade-offs between their "Needs" and "Wants" by asking if they are able to "afford" something. Students will also be introduced to the various financial instruments (e.g. Savings Account, Credit) and recognise the mathematical concepts such as "Interest" behind them. Thereafter, students will learn to recognise common tell-tale signs of scams and be more discerning about purchases that are "too good to be true".

NATIONAL INSTITUTE OF EDUCATION
GROUP ENDEAVOURS IN SERVICE LEARNING - GROUP 10 (SEC/JC 2022)

CAN I AFFORD IT?



LET'S FIND OUT MORE ON HOW TO MAKE RESPONSIBLE FINANCIAL DECISIONS!

NEEDS! OR... WANTS?

NEEDS

are things we must have to **survive** (e.g. food, water, clothes, shelter)

WANTS

are things we would like to have, but are **not required** for survival (e.g. luxury goods, games, toys)

THE 10 BEAN ALLOWANCE

Adapted from "The Bean Game" by Jana Darrington, this game helps you better understand your spending choices and priorities. Everyone starts off with 10 beans and decides on which areas they would like to allocate the beans to. Let's *bean-gin!*

FOOD



DINNER AT HOME,
EAT OUT ONCE A WEEK



EAT OUT
2-3 TIMES A WEEK



EAT OUT
EVERY DAY

CLOTHING



WEAR PRESENT WARDROBE



SHOP AT THRIFT SHOPS



SHOP FOR NEW CLOTHES



SHOP FOR BRANDED CLOTHES

LEISURE



FREE ACTIVITIES
(EXERCISE / HIKING)



INEXPENSIVE ACTIVITIES
(PICNIC / CYCLING / TV)



MID RANGE ACTIVITIES
(MOVIE / KTV)



EXPENSIVE PURCHASES
(NEW TABLET / PC / PS4)

TRANSPORT



WALK HOME!



TAKE PUBLIC TRANSPORT
(BUS / MRT)



PRIVATE HIRE
(TAXI / GRAB / GOJEK)

GUIDING QUESTIONS

1. How did you spend your beans?
2. Did you spend mostly on **needs** or **wants**?
3. If your allowance next month is reduced to 5 beans...
how would that change your spending choices?

(Total beans for next month = Beans saved for current month + 5)

Budgeting
is the process of
creating a plan to
spend your money!



SO...
HOW MANY
BEANS DID
YOU SAVE?

When we need to
sacrifice a choice
due to limited
resources, it results
in a **trade-off**.

MAKING FINANCIAL DECISIONS



LET'S HELP JOHN!

John wants to buy a new phone, but it costs \$1,000!
He only has \$300 now and he can only save \$100 a month, what are his options?

PRINCIPAL

is the initial amount of money borrowed before interest is accrued.

INTEREST

is the price you pay to borrow money or the cost you charge to lend money.

#1 PAY WITH CREDIT CARD



Banks charge interest on the card's outstanding balance each month.

E.g. ABC bank charges 2% interest on **outstanding balance** each month.

For instance,

Principal Amount Borrowed: \$1,000

Monthly Payment (P): \$100

Month 1:

Interest (I): $2\% \times \$1,000 = \20

Outstanding Balance (B):

$\$1,000 + \$20 - \$100 = \920

Month 2:

Interest (I): $2\% \times \$920 = \18.40

Outstanding Balance (B): $\$920 + \18.40

$- \$100 = \838.40

$$I = 2\% \times B$$

$$B(\text{new}) = B(\text{outstanding}) + I - P$$



Note: He will have to pay an interest every month until the debt is cleared!

This means...

It will take John 12 months and \$1,127.03 to repay the bank fully!

Simple Interest is the interest calculated on the original principal loan only.

Compound Interest is the interest that accrues on both the original principal loan and the accumulated interest from previous periods.

#2 FIND A SECOND HAND DEAL!



Sometimes, online platforms such as Carousell or Facebook Marketplace may have the same product at a lower price!

Even though it may seem tempting, we should ask ourselves...

Are there reliable reviews?

Is the seller known to be reliable?

Is the deal too good to be true?

When in doubt...

It might be a scam!

Go to **Page 6** to find out more!

#3 PAY BY INSTALMENTS



Buyer makes an initial down-payment and pays the balance plus interest in smaller, regular instalments.

E.g. 12 month instalment plan: initial down-payment is 30% of total cost, simple interest of 2% per annum charged on the balance.

For instance,

Total cost of phone: \$1,000

Initial down-payment:

$\$1,000 \times 30\% = \300

Remaining balance:

$\$1,000 - \$300 = \$700$

Principal (P): \$700

Interest rate in decimals (R): 0.02

Time in years (T): 1 year

Interest (I): $\$700 \times 0.02 \times 1 = \14

Monthly instalment:

$(\$700 + \$14) \div 12 = \$59.50$

$$I = P \times R \times T$$

Note: To split his payments into monthly instalments, he has to pay more than the original price due to interest!

This means...

It will take John 12 months and \$1,014 to pay off the total amount!

#4 SAVE FIRST, BUY LATER!



Deposit money into the bank each month and earn interest on the total savings in your account.

E.g. DEF Bank offers 0.5% interest compounded monthly on total savings.

For instance,

Initial savings: \$300

Monthly deposit: \$100

Month 1:

Initial savings (S(start)): \$300

Deposit (D): \$100

Interest earned (I):

$0.5\% \times \$300 = \1.50

Savings at end of month (S(end)):

$\$300 + \$1.50 + \$100 = \401.50

Month 2:

Savings at start of month (S(start)):
\$401.50

Deposit (D): \$100

Interest earned (I):

$0.5\% \times \$401.50 = \2.01

Savings at end of month (S(end)):

$\$401.50 + \$2.01 + \$100 = \503.51

$$I = 0.5\% \times S(\text{start})$$

$$S(\text{end}) = S(\text{start}) + I + D$$

This means...

It will take John 7 months to save \$1,021.25, with extra \$21.25 gained due to interest!

CONSIDERATIONS

1. Does John need the item immediately?
2. Does John mind paying a little extra to split the payment into instalments?
3. Will John have enough to pay off the credit card bill on time, and in full?
4. Is there a trade-off for using the money now?



HOW SHOULD WE ADVISE JOHN?

TYPES OF SCAMS!



IMPERSONATION

Did a Nigerian prince seek your help to reclaim his throne? More likely not—scammers pretend to be figures of authority such as government officers or the police, and request money or personal information.

E-COMMERCE

Scammers list fake items on e-commerce marketplaces or social media at unbelievably low prices. Fake listings include those selling gaming products, concert tickets, or collectable sneakers. Scammers disappear once payment is received.



SMS / EMAIL PHISHING



No, not fishing! Scammers will claim that there are breaches to your bank account and request for your banking information. After you enter your password and One-time Password (OTP) into a fake-site, they "fish" away your money!

LOVE

Someone tries to befriend or start a romantic relationship with you out of the blue on social media. They seek to build trust over time before claiming that they are in hard times or seek money as proof of friendship or love.



There has been an increasing amount of reported scamming incidences. We ought to know the signs so that we can actively avoid having our hard earned money and savings duped away by those with ill intentions!

HOW TO AVOID SCAMS?

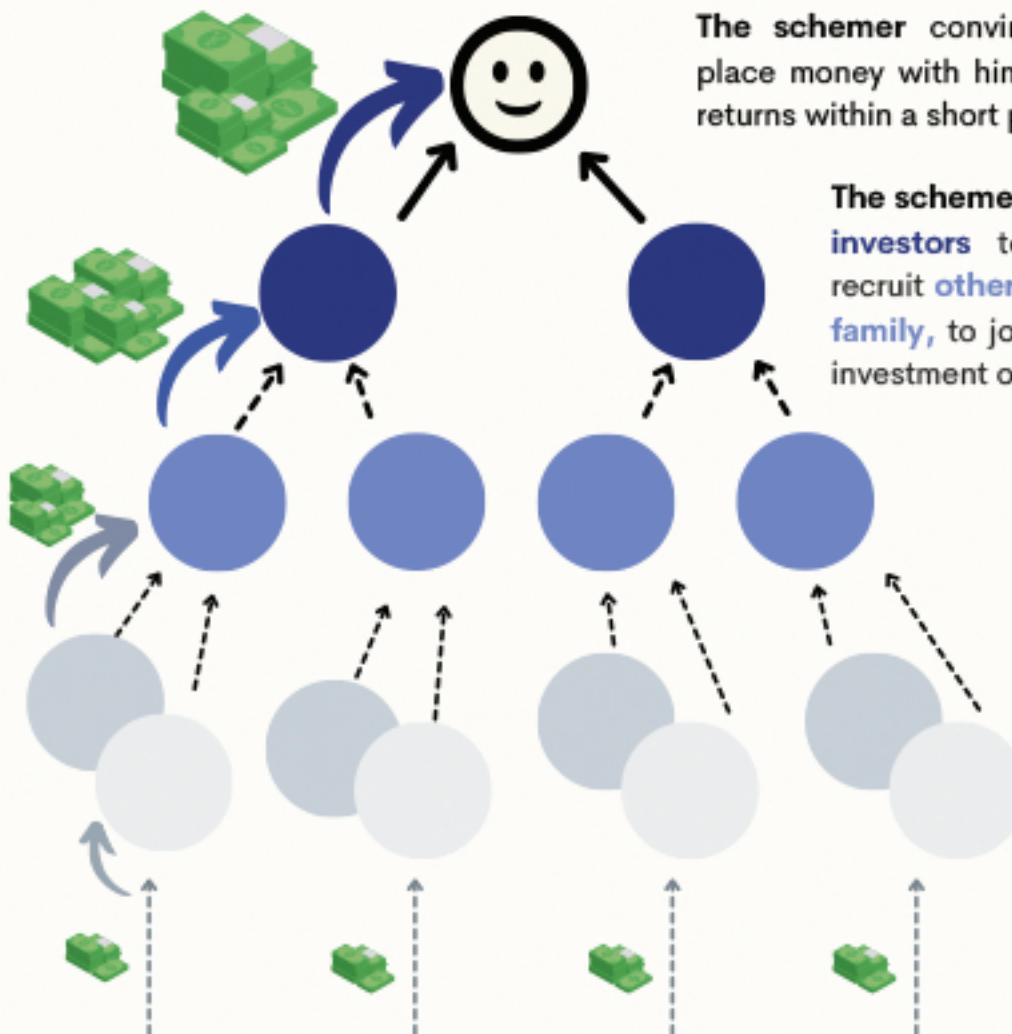
- **Do** be mindful when posting on social media—avoid the inclusion of personal information.
- **Do** check reputable sources/platforms for prices before purchasing items online. If the price of an item is too good to be true, it often is.
- **Do not** reveal your account details, password, and OTP to anyone over the phone or email. Contact the bank if you believe that your account is compromised.
- **Do not** click on hyperlinks within SMSes or emails that come from an unknown sender.

PONZI / PYRAMID SCHEMES



Charles Ponzi and Bernie Madoff both lured investors into giving them money with the promise of huge rates of returns. What investors didn't know was that there was actually no legitimate business! How did they manage to pull off fraud without arousing initial suspicions?

IN A NUTSHELL...



The **schemer** convinces **initial investors** to place money with him, using a promise of high returns within a short period of time.

The **schemer** then convinces the **initial investors** to spread the word and recruit **others, even their friends and family**, to join this "once-in-a-lifetime investment opportunity".

The **schemer** then uses the money placed by the **new investors** to pay the promised returns to **initial investors**, and keeps a cut of the money for **themselves**.

Subsequent investors may be required to pay larger "entry fees" to fulfil the promises to earlier investors and to increase **the schemer's** income.

ANSWERS

a. 8,192

b. 13,060,694,016

WHY DO PONZI SCHEMES FAIL?

Often, the **Ponzi Scheme** (or **Pyramid Scheme**, named after the above diagram) is unsustainable. Initially, as the schemer is able to repay previous investors the promised returns, no suspicion is raised. However, these schemes collapse once it becomes difficult to find new investors or when the schemer disappears with the money. The size of Ponzi's and Madoff's fraud is estimated to be **S\$350 million** and **S\$65 billion** respectively (Business Insider, 2021)! Let's take a closer look at the mathematics together.

As there is a strong **compounding effect across multiple levels** within a Ponzi or Pyramid scheme, we will have to understand the **Exponential Function** better.

$$x^n = \underbrace{x \times x \times x \dots}_{n \text{ times}}$$

x = number of investors in the first month

n = number of months

LET'S TRY TO WORK OUT WHAT HAPPENS IF...

a) The schemer starts with **two** investors in the 1st month. Find out the number of investors required by the 13th month, using the exponential function!

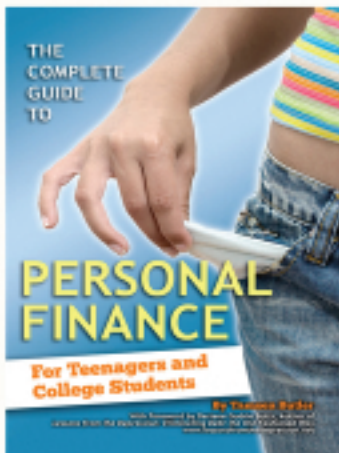
b) The schemer starts out with **six** investors in the 1st month. How many investors would be required by the 13th month? (Hint: It's larger than the world's population!) This is why Ponzi Schemes are unsustainable and destined to fail!

**P.S. THE ANSWERS ARE IN THE PREVIOUS PAGE.
GIVE IT A TRY BEFORE CHECKING!**

The Exponential Function is one of the most important functions in mathematics! It is often used to represent real-world applications, such as bacterial growth, population growth, and compound interest.

A Ponzi / Pyramid scheme is sometimes also referred to as Multi-Level Marketing (MLM) scheme. There have been many well-documented MLM schemes in recent history. Do you know of any?

**IF YOU ARE INTERESTED TO FIND OUT MORE,
CHECK OUT THESE TITLES AVAILABLE AT NLB!**



The Complete Guide to Personal Finance

Author: Tamsen Butler

Publisher: Atlantic Publishing Group Inc, 2013

Only available as an eBook on [NLB OverDrive](#)

Saving money doesn't need to be difficult or overwhelming! Learn how to start by constructing your budget plan and looking at strategies that help you stick to your long-term saving goals.

Synopsis adapted from Atlantic Publishing Group Inc



Scam Me If You Can

Author: Frank W. Abagnale

Call No.: 364.163 ABA

Publisher: Portfolio/Penguin, 2019

A former scam artist wanted by the FBI reveals how your money and personal information are under threat! Check out the book for the inside intel on their operations and tips to prevent falling for scams!

Synopsis adapted from Portfolio/Penguin

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REFERENCES

Darrington J. (2011). *The Bean Game*. Utah State University Cooperative Extension. Retrieved April 29, 2022, from: https://www.extension.iastate.edu/4h/files/page/files/bean_game.pdf

Yang, S., & Kay, G. (2021, April 14). *Bernie Madoff died in prison after carrying out the largest ponzi scheme in history – here's how it worked*. Business Insider. Retrieved April 28, 2022, from <https://www.businessinsider.com/how-bernie-madoffs-ponzi-scheme-worked-2014-7>