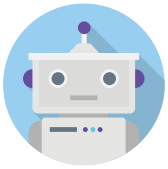
# ACTIVITY B

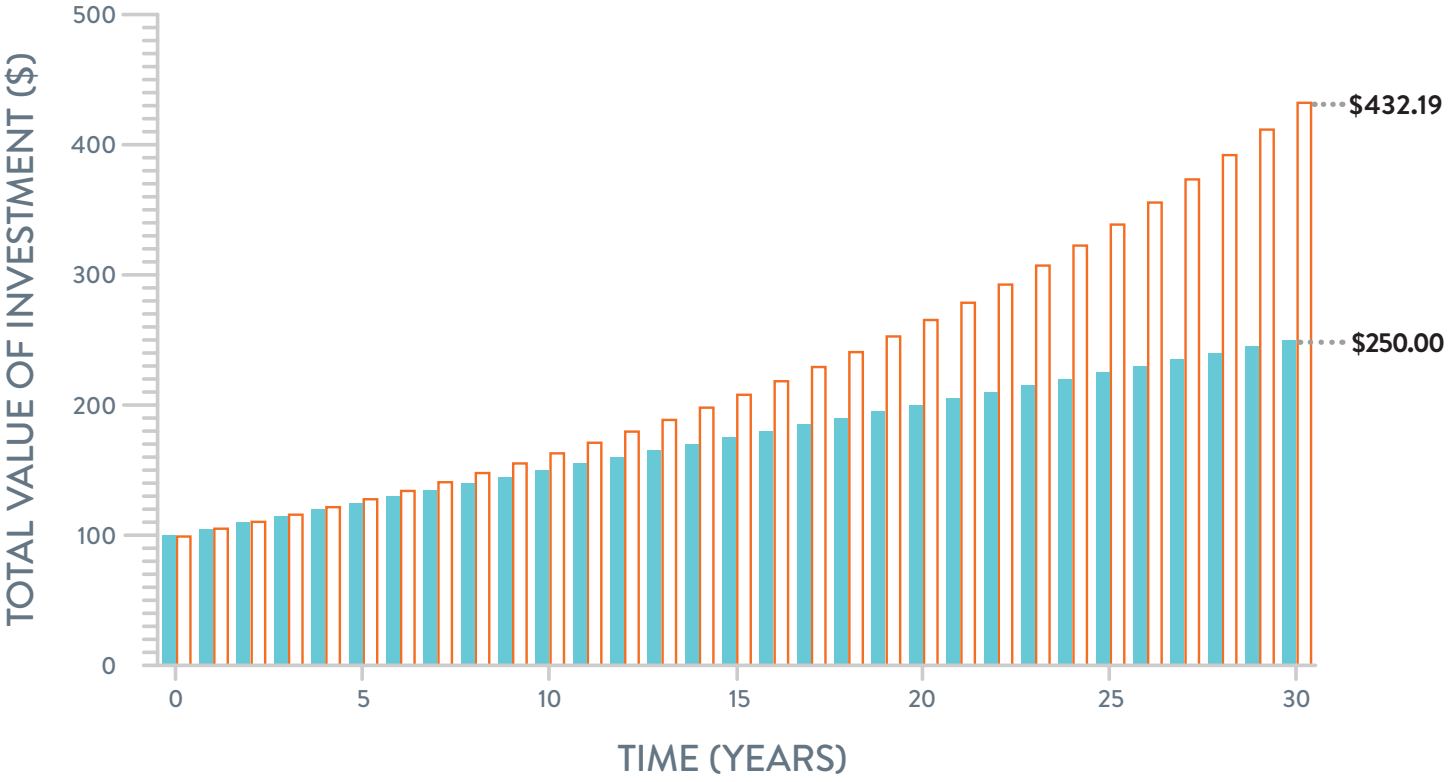
## *Compound Interest*

## GRAPH 1: SIMPLE INTEREST VS. COMPOUND INTEREST



**BLIPPY**
Initial deposit: **$100**
Additional annual contribution: **$0**
Interest rate: **5% simple interest**
(compounding period not applicable)
Years to grow: **30**

**EINSTEIN**
Initial deposit: **$100**
Additional annual contribution: **$0**
Interest rate: **5% compound interest**
Interest compounds **annually**
Years to grow: **30**




## GUIDING QUESTIONS

- What's the difference between Blippy's investment and Einstein's investment?
- Whose investment earned more interest after 30 years?
- How does the **shape** of Einstein's graph differ from Blippy's graph? Why do you think that is?

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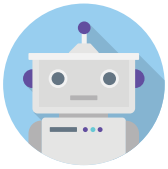
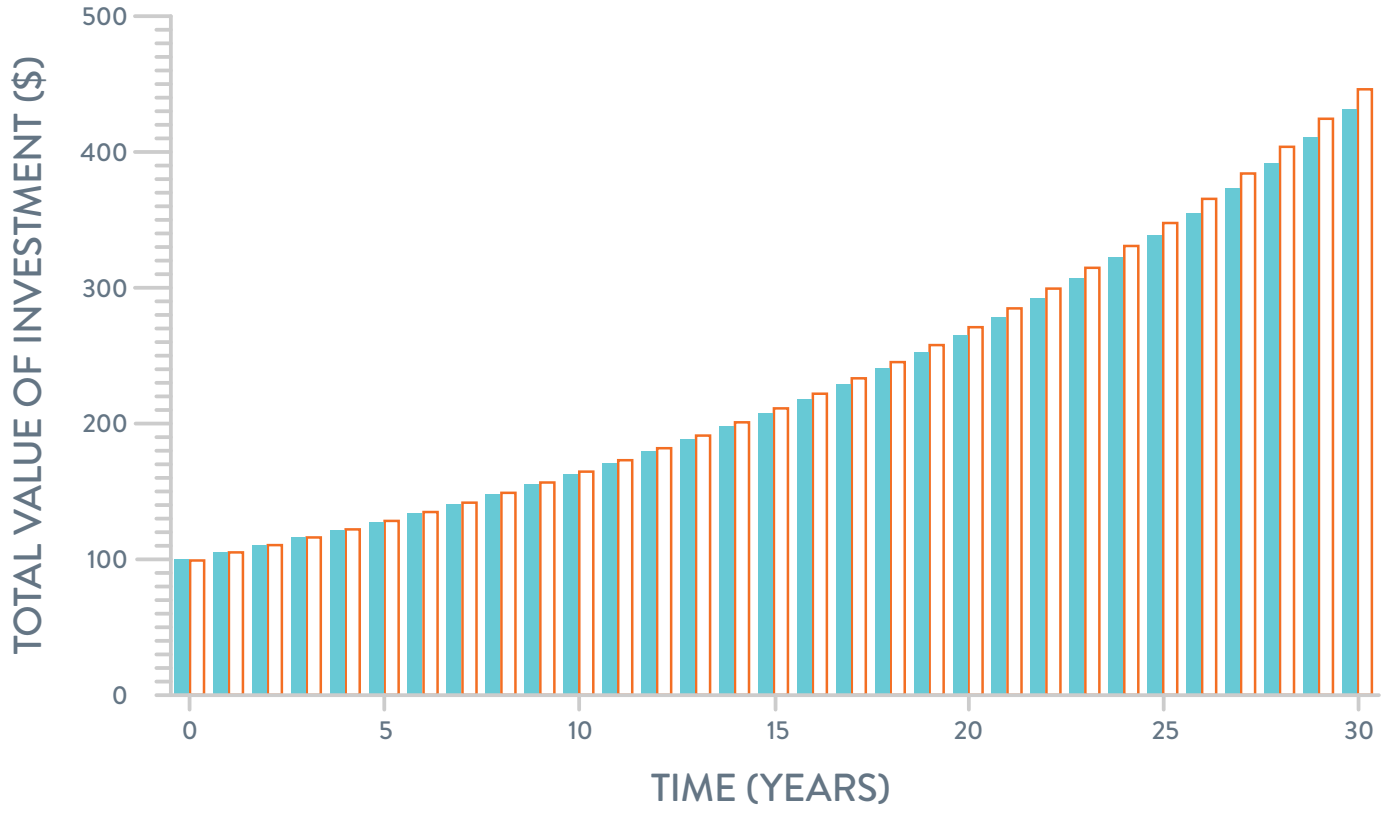
## GRAPH 2: COMPOUNDING PERIOD



**BLIPPY**
Initial deposit: **$100**
Additional annual contribution: **$0**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **30**

**EINSTEIN**
Initial deposit: **$100**
Additional annual contribution: **$0**
Interest rate: **5%**
Interest compounds **monthly**
Years to grow: **30**




## GUIDING QUESTIONS

- What's the difference between Blippy's investment and Einstein's investment?
- Whose investment earned more interest?
- What do you think would happen if Blippy's investment compounded weekly instead of annually?

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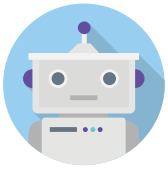
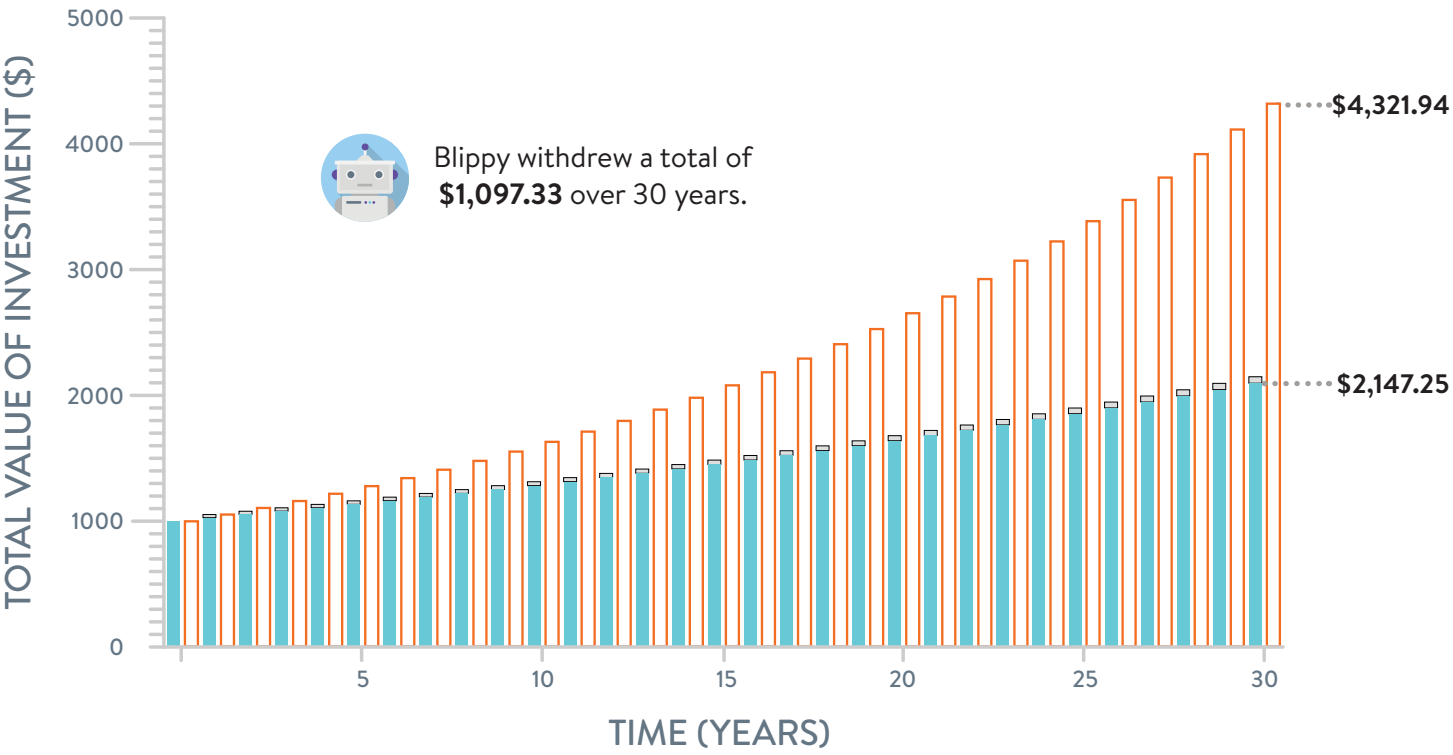
## GRAPH 3: SPENDING THE INTEREST



**BLIPPY**
Initial deposit: **$1,000**
Additional annual contribution: **$0**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **30**
Blippy spends half of his interest each year

**EINSTEIN**
Initial deposit: **$1,000**
Additional annual contribution: **$0**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **30**
Einstein leaves his investment alone

Represents how much Blippy spends each year




## GUIDING QUESTIONS

- What did Blippy do differently than Einstein?
- If you add the amount of money Blippy spent to the total value of his investment after 30 years, is it equal to the total value of Einstein's investment? Why or why not?

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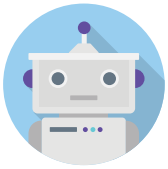
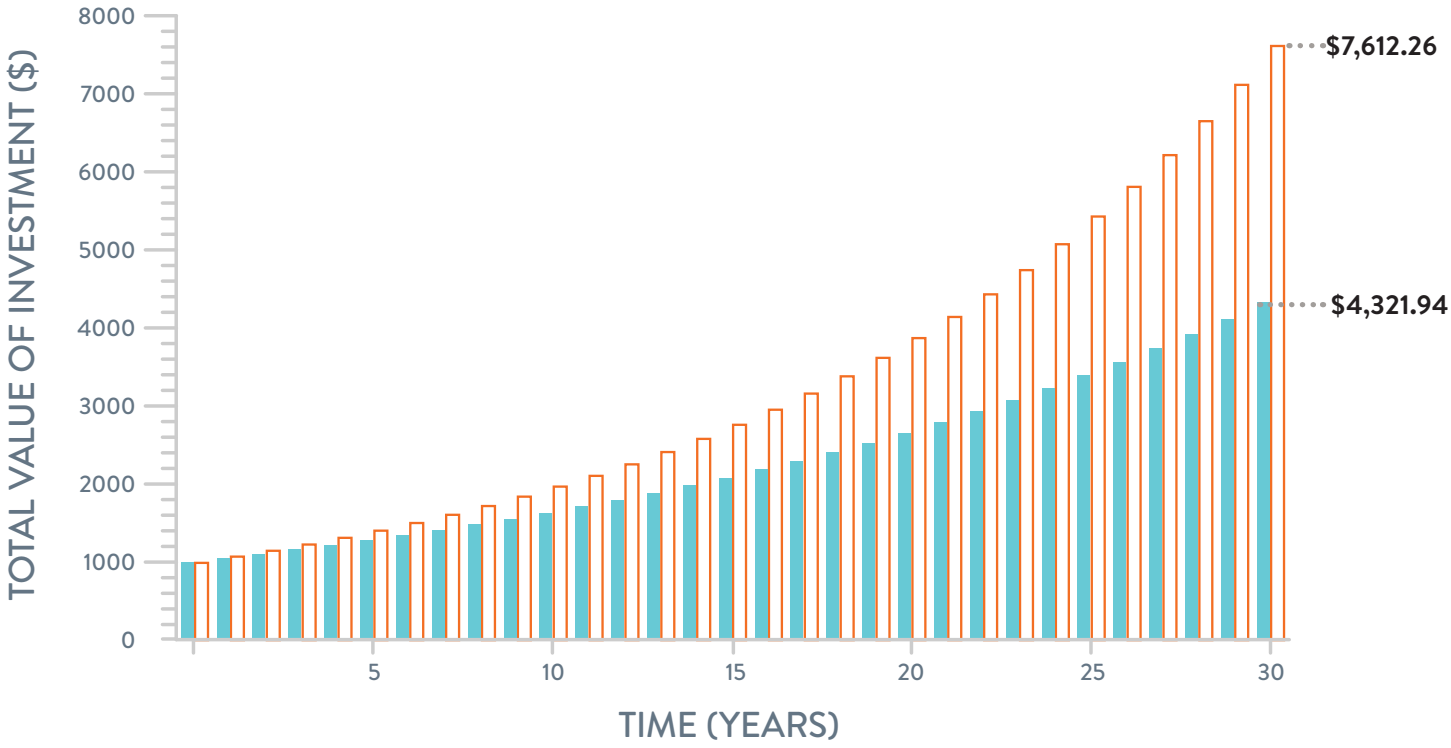
### GRAPH 4: INTEREST RATE



**BLIPPY**
Initial deposit: **$1,000**
Additional annual contribution: **$0**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **30**

**EINSTEIN**
Initial deposit: **$1,000**
Additional annual contribution: **$0**
Interest rate: **7%**
Interest compounds **annually**
Years to grow: **30**




### GUIDING QUESTIONS

- What's the difference between Blippy's investment and Einstein's investment?
- Whose investment earned more interest after 30 years?
- What effect does the interest rate have on compound interest?

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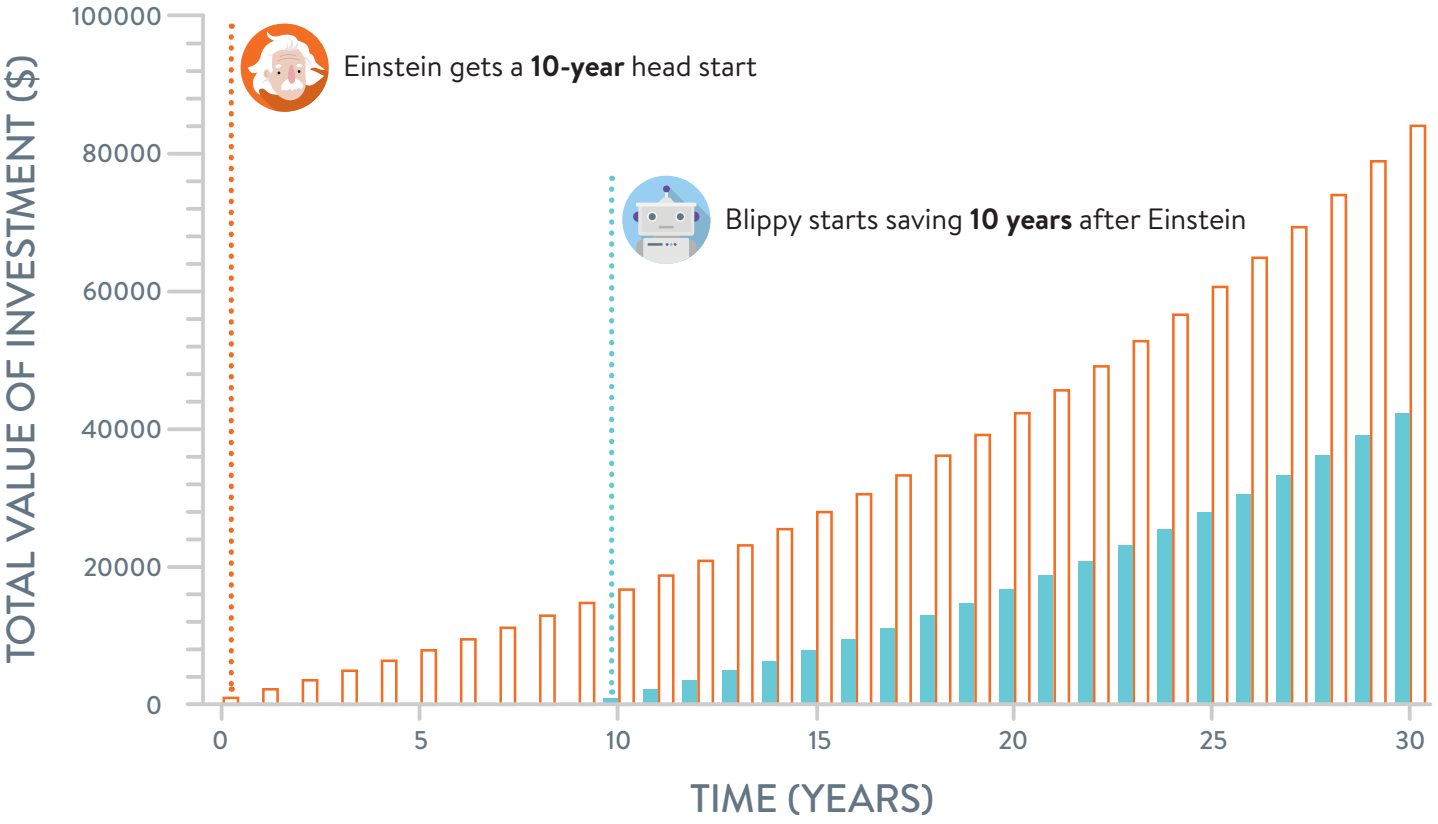
### GRAPH 5: STARTING EARLY

**BLIPPY**
Initial deposit: **$1,000**
Additional annual contribution: **$1,200**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **20**

**EINSTEIN**
Initial deposit: **$1,000**
Additional annual contribution: **$1,200**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **30**




*Blippy earned a total of $17,332 in interest and Einstein earned a total of $47,048 in interest*

### GUIDING QUESTIONS

- What did Einstein do differently than Blippy?
- Whose investment earned more interest at the 30-year mark?
- Who contributed the most money toward their investment?

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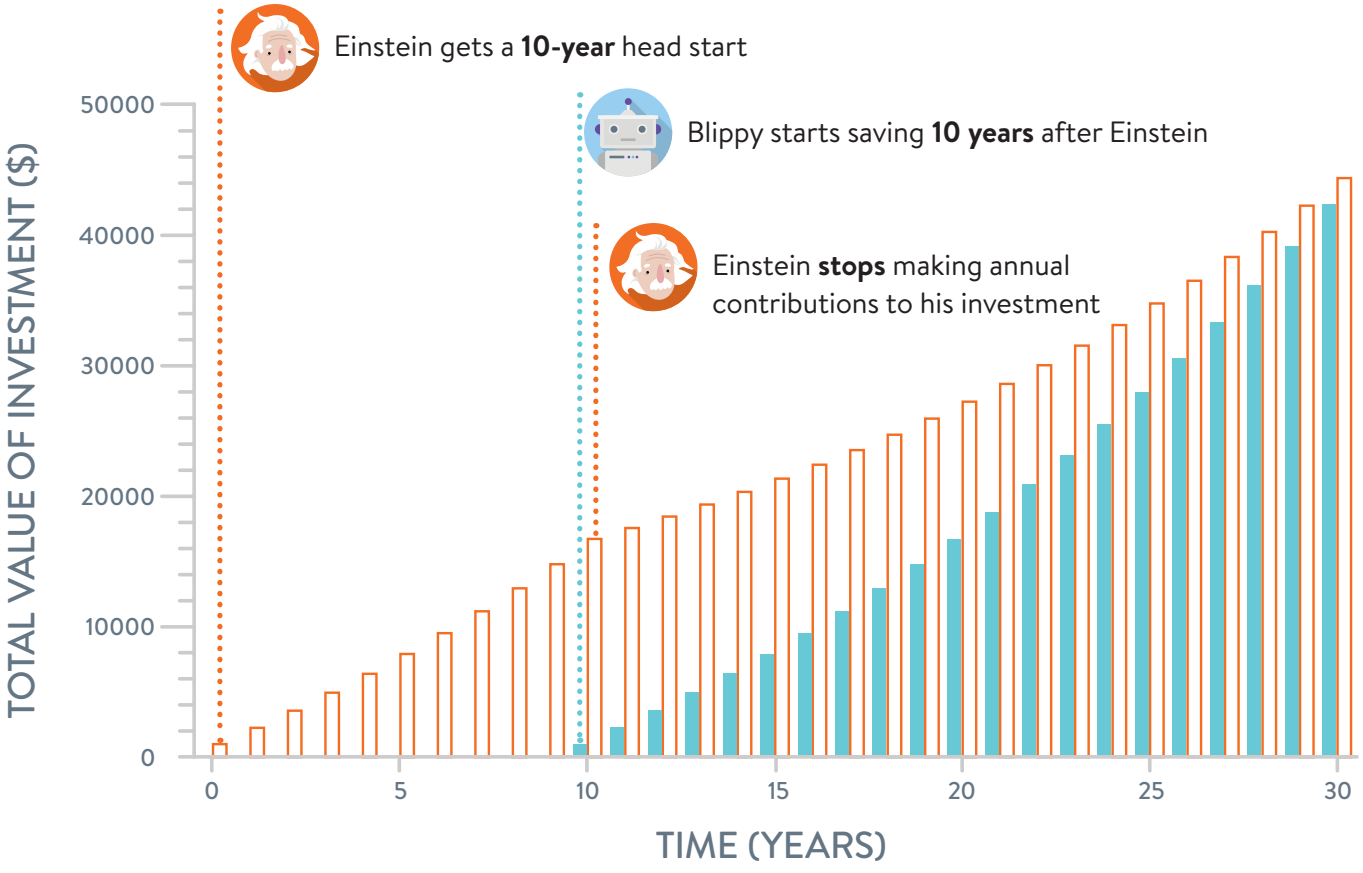
### GRAPH 6: STARTING EARLY AND CONTRIBUTING LESS

**BLIPPY**
Initial deposit: **$1,000**
Additional annual contribution: **$1,200**
Contributes for **20 years**
Contributes **$24,000 total**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **20**

**EINSTEIN**
Initial deposit: **$1,000**
Additional annual contribution: **$1,200**
Contributes for **the first 10 years only**
Contributes **$12,000 total**
Interest rate: **5%**
Interest compounds **annually**
Years to grow: **30**




### GUIDING QUESTIONS

- What did Einstein do differently than Blippy?
- Whose investment was worth more at the 30-year mark? Who paid more money into their investment?
- Why is it important to start saving as early as possible?

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## WORKSHEET—GRAPH ANALYSIS

**Directions: Interpret the provided graph in order to answer the questions below. Be prepared to present your findings to the class.**

| **GRAPH #:** | **FACTOR:** |
|---|---|

What conclusion did you reach?

Is this factor under your control?

What can you do to influence this factor in a positive way (increase interest earnings)?

What can you do to influence this factor in a negative way (decrease interest earnings)?

## NOTES