ACCT 101: Bookkeeping, accruals, and adjusting
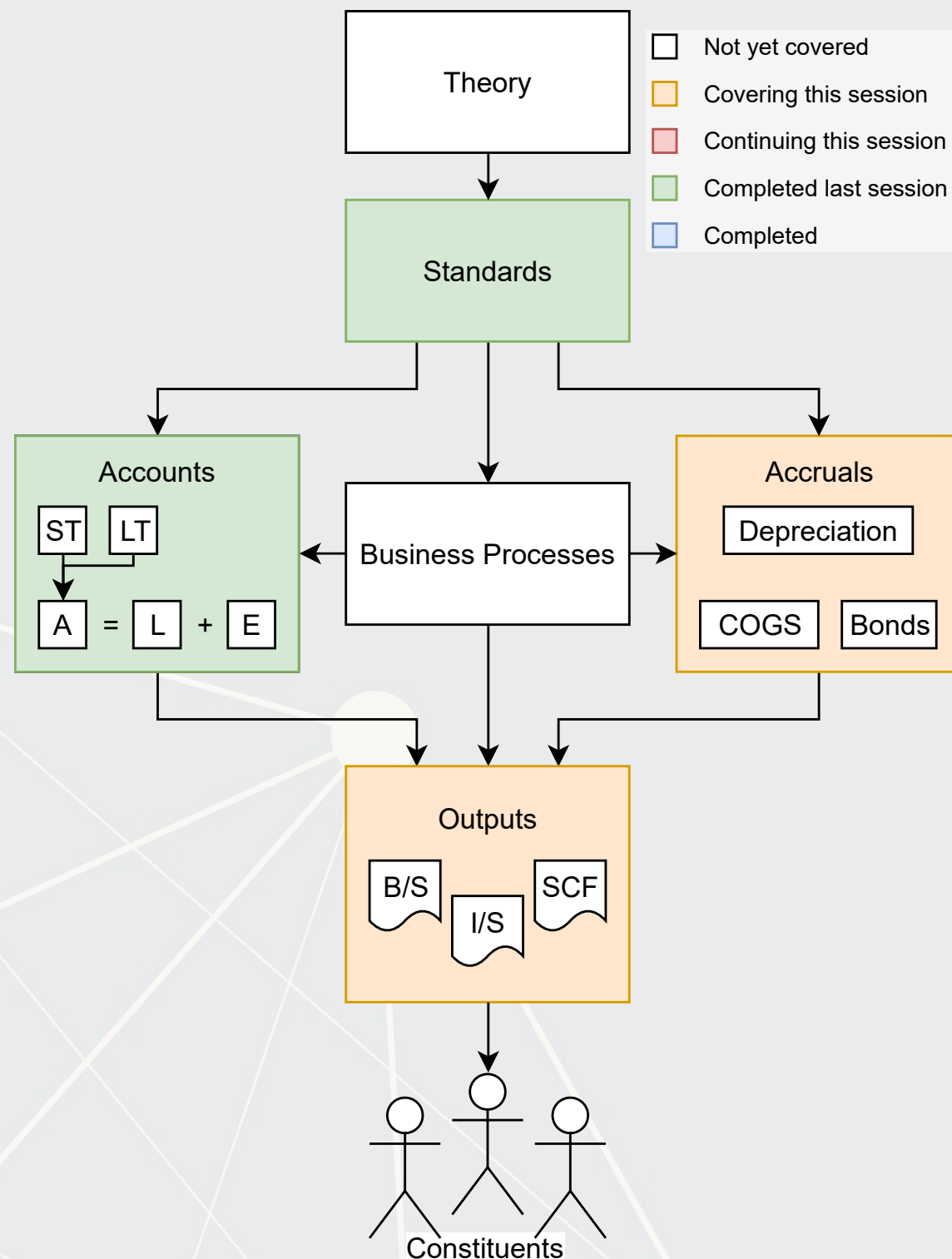
Session 2

Richard M. Crowley

Frontmatter

Frontmatter

- Homework 1 due next week
  - Available on eLearn
  - Submit on eLearn
- Covers topics from today's session

Learning objectives

- Bookkeeping (Chapter 2)
  1. Understand how accounting works
  2. Record transactions in the journal
  3. Construct a trial balance
- Accruals and Adjustments (Chapter 3)
  1. Relate accrual accounting and cash flows
  2. Apply the revenue and matching principals
  3. Adjust accounts

Debits and credits

History: Before double entry

- 8500 BCE: Shaped clay tokens represent commodities
- 200 BCE: Arabic numerals (except **0**)
- 600 CE: **0** developed
- 800 CE: 10-digit numerals spread throughout Europe

MS 4631
Bulla-envelope with 11 plain and complex tokens inside.
Near East, ca. 3700-3200 BC

http://www.schoyencollection.com/mathematics-collection/pre-literate-counting/bulla-envelope-ms-4631

*Note: This slide is based on a history lecture by Dr. Pierre Liang at Carnegie Mellon from October 2017

History: Double entry

- 1400s CE: First evidence of *double entry* accounting in Italy
- 1494 CE Italian monk and scholar Luca Pacioli publishes first text on *double entry* bookkeeping
  - Summa de Arithmetica, Geometria, Proportioni et Propotionalita

*Note: This slide is based on a history lecture by Dr. Pierre Liang at Carnegie Mellon from October 2017

History: Journal entries

(1491)

7. *Faro debetore* Tomasone del Buono e *creditore* spese di mercanzie di s. iiij d'oro per spese fatta a un fardello di panno corsato mandato da Lucca da Bonaccorsi a Libro 203/100 lib—aiiij d—

7. *I make debtor* Tomaso del Buono and *creditor* Merchandise Expenses for 4 s. in gold, for expenses incurred on a bale of cloth sent by Lucca da Bonaccorsi in the book 203/100 lib.—s4d—

(1553)

10. Devonshire Kerseys is debitor to Laurance Fabian, draper, and is for 10 pieces at 36 s. a piece—etc.—L. 108 s—d—

(1570)

14. Roggen *soll an* Hering, hab ich mit Audreas Klur von Thorn einen stick getroffen—etc.
fl. 472.15—

14. Rye *owes to* Herring, which I have bartered with Audreas Klur of Thorn—etc...fl. 472.15

(1595)

11. Cassa van ghereden ghelde *is schuldich aen* Cappital van my 8000 guld. Ende is voor verscheyden penninghen van gout ende silver, so ick in mynen handen hebbe, omme daermede te dryuen den handel van coopmanchap. Godt wil my verleenen ghewin, ende behaeden voor verlies. Amen....g. 8000

11. Ready money *is indebted to* Capital for my 8000 guilders. And is for different coins of gold and silver that I have in hand to use in pursuing the trade of merchandise. God will grant me profit and preserve me from loss. Amen...g. 8000

Images from Littleton 1928 TAR.

History: Journal entry evolution

(3)
English Journal Entries After 1600

(1684)
19. George Pinchback Debitor to Kettles £75-8d for 5 barrels—etc. 75/-/8

(1717)
20. P. Q. at Gibraltar my accompt current Debtor to Voyage to Gibraltar, consigned to P. Q. £322.9.7½—etc.......................322/9/7½

(1754)
21. William Wife £360 to Sherry for 10 pipes delivered to him in barter.................. 360/-/–

(1788)
22. Charges merchandise Dr. to paper taken for use in shop............................... -/10/6

(1841)
23.   Dr.   Cr.
     Mdse. 1000   B/P   500
                                         Cash   500

(1848)
24. Cash to Sundries   1590
        to Bills Receivable   1500
        Profit and Loss   90

(1864)
                                    Dr.   Cr.
25. Merchandise Dr.   5000
        to James Munroe   5000

(1900)
26. Merchandise   400
        to Cash   400

Shakespeare likely did this sort of work for the British Navy! (Source: Reynolds 1974 JAR)

History: Impact

The Principles of Book-keeping by Double Entry constitute a theory which is mathematically by no means uninteresting: it is in fact like Euclid's theory of ratios an absolutely perfect one, and it is only its extreme simplicity which prevents it from being as interesting as it would otherwise be.
– Arthur Cayley, FRS, The Principles of Book-keeping by Double Entry, 1894.

Bookkeeping has become a real technology instead of a simple clerical routine, and in addition there has grown up a profession of accounting which reaches quite beyond bookkeeping.
– A. C. Littleton, The Evolution of the Journal Entry, 1928.

Debits

on

the

left

Credits

on

the

right

Memorize this!

This is double entry accounting

Debits and credits

Debits (DR)

- Increase assets
- Decrease liabilities
- Decrease equity
  - Decrease revenue
  - Increase expenses

Credits (CR)

- Decrease assets
- Increase liabilities
- Increase equity
  - Increase revenue
  - Decrease expenses

The side of an account that increases its balance is called the account's *normal balance*

Debits **always** equal credits for a transaction

Representing accounts: T-accounts
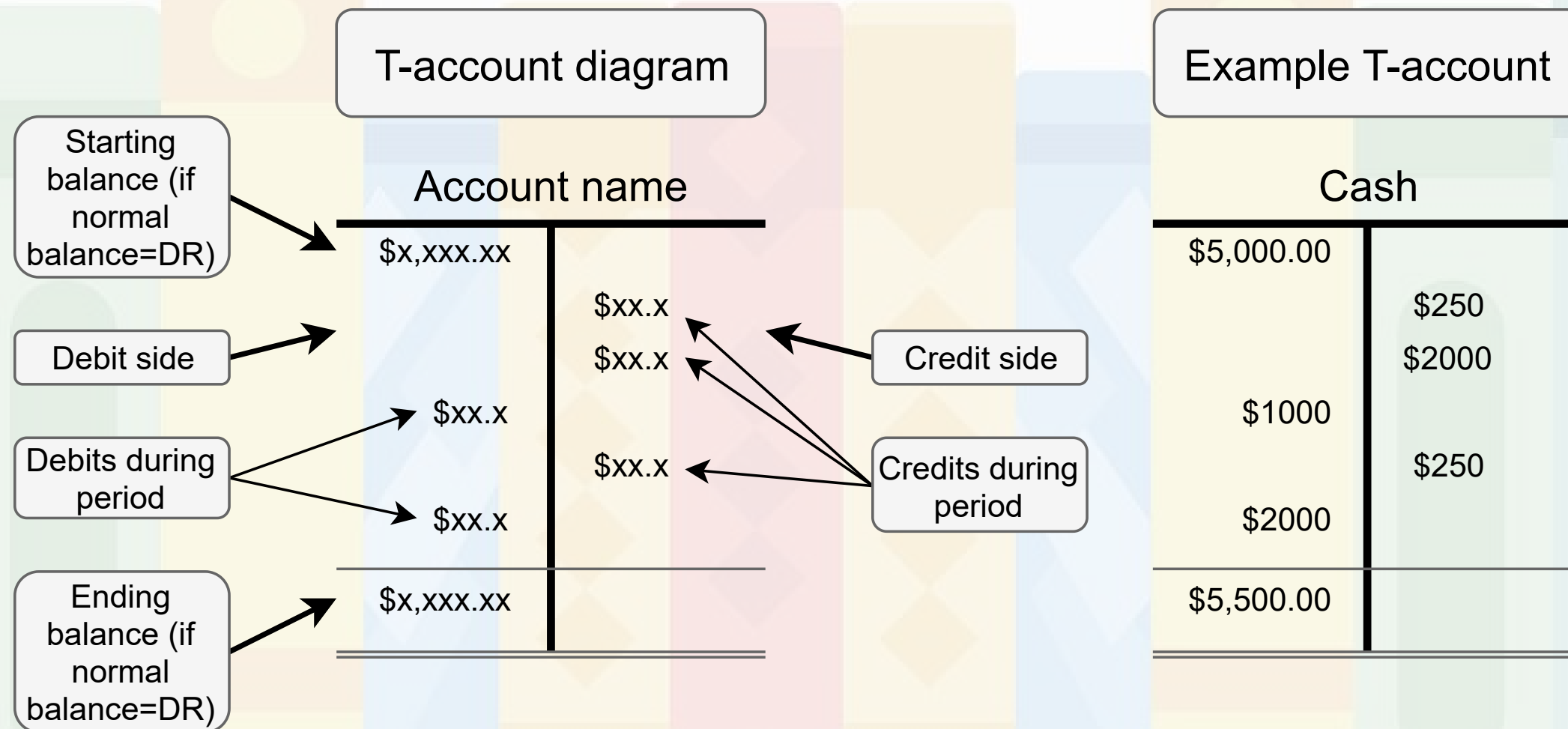
Normal balances

Normal Balances	Accounts following normal balances		Reversed accounts
Assets DR↑ CR↓	**Cash** DR↑ CR↓	**Inventory** DR↑ CR↓	**Contra Asset** DR↓ CR↑
Liabilities DR↓ CR↑	**Accounts Payable** DR↓ CR↑	**Notes Payable** DR↓ CR↑	**Contra Liability** DR↑ CR↓
	Revenue DR↓ CR↑	**Share Capital** DR↓ CR↑	**Expense** DR↑ CR↓
Equity DR↓ CR↑	**Retained Earnings** DR↓ CR↑		**Dividends** DR↑ CR↓

Review: Debits & credits

1. Where do debits go?
2. Where do credits go?
3. What do debits equal?
4. What do credits equal?

Review: Debits & credits

1. Where do debits go?
   - Left!
2. Where do credits go?
   - Right!
3. What do debits equal?
   - Credits!
4. What do credits equal?
   - Debits!

Bookkeeping

Accounts

- Assets: Cash, A/R, inventory, equipment, …
- Liabilities: A/P, debt, expenses payable, …
- Equities: Expenses, revenue, capital, ret. earnings, …
- Documented granularly in the *Chart of Accounts*

Source documents

- The paper trail
- Establishes amounts
- Confirms a traction occurred or was contracted
- Allows for analyzing and verifying at the transaction level
  - Needed for auditing!
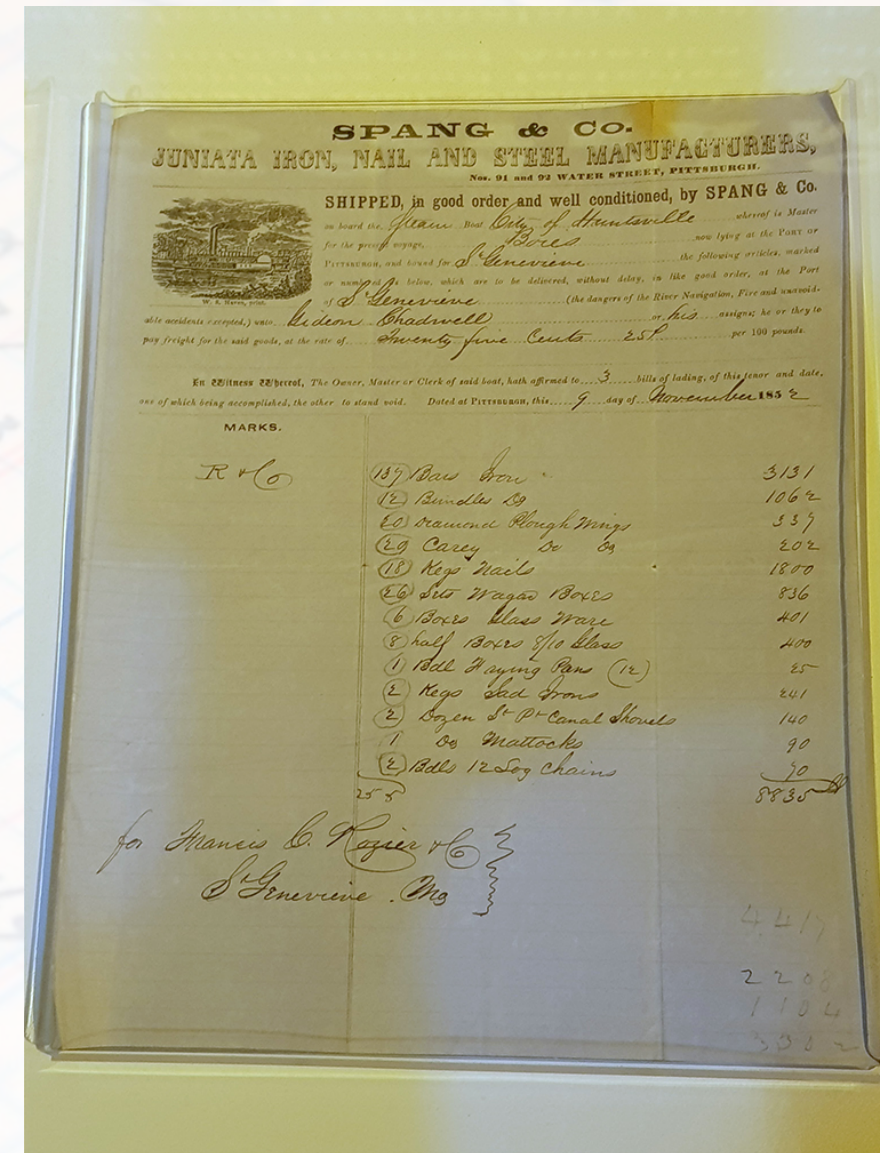
Bill of laiding, 1852
[Heinz Museum]

General journal

- Where everything is recorded first
  - Everything
  - Every little transaction
- Specifies the accounts, values, and document for each transaction
  - We will skip references
  - We will be doing journal entries through session 9
- Always *list debits first*

Date	Account Title and Description	Ref.	Debit	Credit
20X1				
Aug. 1	Cash		50,000	
	Notes Payable			50,000
	Borrowed $50,000			
3	Equipment		30,000	
	Cash			30,000
	Purchased equipment			
6	Vehicles		20,000	
	Notes Payable			18,000
	Cash			2,000
	Purchased delivery truck			

General Journal — GJ1

DR = CR for *each entry*

Constructing journal entries

Sum of DR = Sum of CR

Date	Account	DR	CR
DATE HERE	Debit 1	XX.XX	
	Debit 2 (if needed)	XX.XX	
	...		...
	Credit 1		XX.XX
	Credit 2 (if needed)		XX.XX
	...		...
Explanation of above transaction here			

Date at the start of entry

Values paired with accounts

Debits listed first

Credits indented

Examples: Cash sale, inventory purchase, and paying wages

Date	Account	DR	CR
20XY.01.01	Cash	100.00	
	Revenue		100.00
Cash sale			
20XY.01.02	Inventory	250.00	
	Accounts payable (A/P)		250.00
Purchased inventory on account			
20XY.01.03	Wage expense	500.00	
	Wages payable	500.00	
	Cash		1,000.00
Paid wages, of which $500 was previously recognized (prerecorded)			

In order by date

Constructing journal entries

1. Get the in class activity spreadsheet
   - Session_2_Activity.xlsx
2. We'll go through the first three transactions together
   - Journal entries
3. Journal the next 11 transactions with your group in the blue tab of the spreadsheet
   - We'll do the rest of the activity throughout the class

General ledger

- An aggregation of all the accounts
- Shows all account balances
- Includes details of each account
- T-accounts sufficient for this course

Cash	
$5,000	
	$250
	$2000
$1000	
	$250
$2000	
$5,500	

Accounts Payable	
	$2,000
$250	
$250	
	$1,500

Revenue	
	$1000
	$2000
	$3,000

Inventory	
$3,000	
$2000	
	$500
	$1000
$3,500	

COGS	
$500	
$1000	
$1,500	

Trial Balance

- Shows all account balances just like the general ledger
  - Make sure they add up!
- Use it to verify **DR = CR**
- Use it to verify the **accounting equation**
- Usually prepared at the end of a period
- Can prepare income statement and balance sheet from it

ShineBrite Car Wash, Inc.
Trial Balance
April 30, 20X4

Account Title	Debit	Credit
		Balance
Cash	$33,300	
Accounts receivable	2,000	
Supplies	3,700	
Land	20,000	
Accounts payable		$ 1,800
Share capital		50,000
Dividends	2,100	
Service revenue		10,000
Gain on sale of land		2,000
Rent expense	1,100	
Salary expense	1,200	
Utilities expense	400	
Total	$63,800	$63,800

DR = CR for totals

Constructing the trial balance

Date	Account	DR	CR
20XY.01.01	Cash	100.00	
	Revenue		100.00
Cash sale			
20XY.01.02	Inventory	250.00	
	Accounts payable (A/P)		250.00
Purchased inventory on account			
20XY.01.03	Wage expense	500.00	
	Wages payable	500.00	
	Cash		1,000.00
Paid wages, of which $500 was previously recognized (prerecorded)			

Cash		Wages payable	
1,000			500
100		500	
	1,000		
100			0

Inventory		Revenue	
100			100
250			
350			100

Accounts payable		Wage expense	
	600	500	
	250		
	850	500	
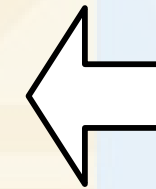
Trial Balance
Month DD, YYYY

Account Title	Debit	Credit
Cash	100	
Inventory	350	
Accounts payable		850
Wages payable		0
Revenue		100
Wage Expense	500	
Total	850	850

Limits of the trial balance

- Can't catch:
  - Unrecorded transactions
    - Because there's no trace of them
  - Wrong amounts in balancing transactions in the journal
    - Everything still balances
  - Wrong accounts of the same type used in the journal
    - Everything still balances
    - $A = L + E$ holds

What you can catch

- Let Out of balance amount be:
  - $OOB = Assets - Liabilities - Equity$
- If OOB / 2 is an integer
  - DR and CR in a transaction may be flipped
    - Ex.: Recorded a cash sale as a CR to cash and a DR to revenue
      - Should be a DR to cash and a CR to revenue
- If OOB / 9 is an integer
  - A slide error happened:
    - Ex.: Recorded 5,400 instead of 54,000
  - A Transposition error happened
    - Ex.: Recorded 45,000 instead of 54,000

T-accounts and the trial balance

1. Return to the in class activity
2. We'll do the first three as a class
3. Finish the rest of the activity with your group
   - Do the two green tabs
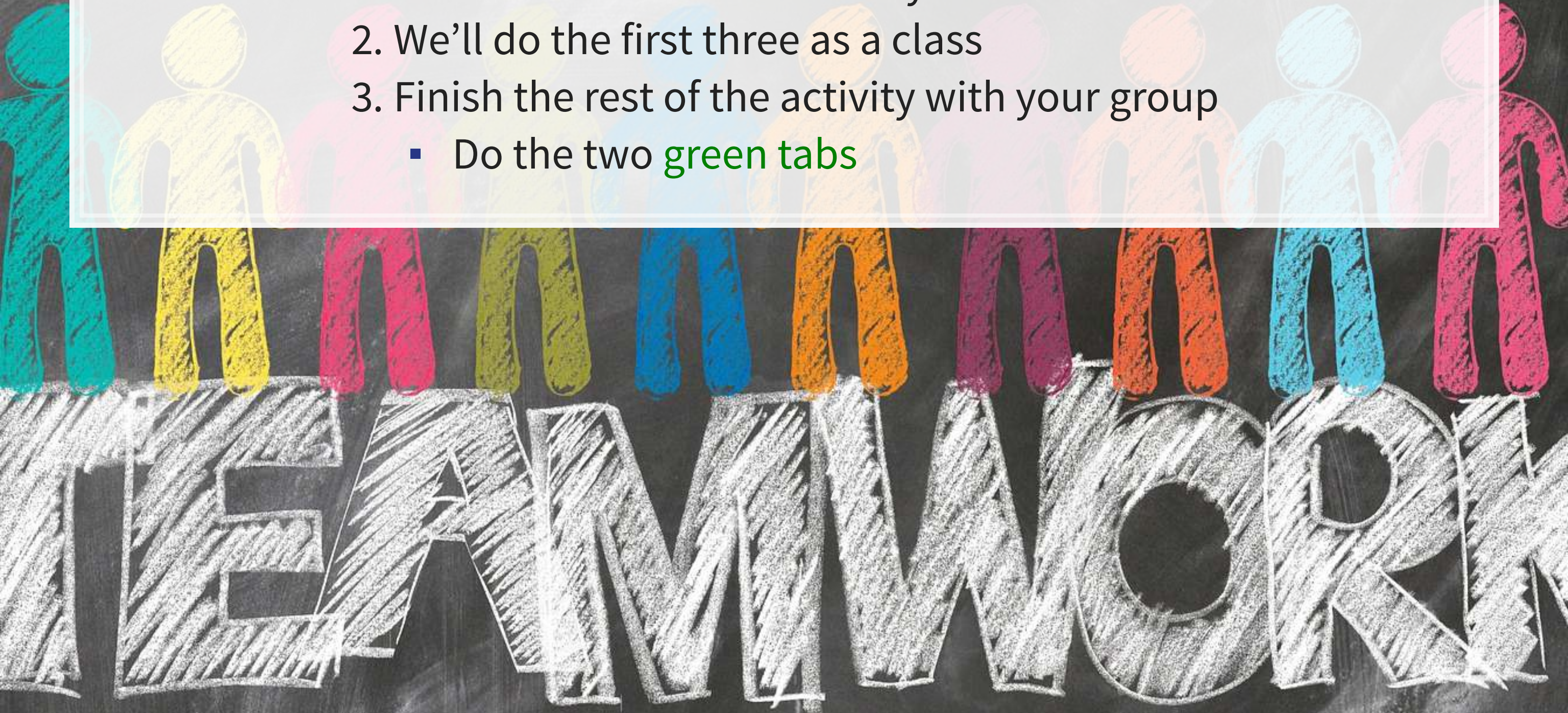
Accruals vs. Cash

Cash basis accounting

- Records cash only transactions
- Used by small companies
- $Profit = Cash\ in - Cash\ out$

PROBLEM

- This ignores underlying economic activity
  - If we make a sale on credit, that doesn't add to profit
  - If we purchase something on credit, this doesn't lower profit

Accrual accounting

- Records impact of transactions *as they occur*
- Required per IAS1, "Presentation of Financial Statements"
- Revenue recorded when it is *"more likely than not"*
- Expenses recorded as *incurred*
- Profit = Revenue - Expenses

PROBLEM

- Profit may not be indicative of cashflows
  - This is a concern for lenders
    - If there's no cash, profit doesn't matter, as the company will go bankrupt

Accrual transaction examples

Cash Transactions	Noncash Transactions
Cash sale	Sales on account (A/R)
Borrowing money	Inventory purchases on account (A/P)
Paying expenses such as wages and rent	Expenses incurred but not yet paid
Receiving cash from interest earned	Depreciation expense
Paying off loans	Usage of prepaid expenses (rent, utilities, etc.)
Receiving cash from shares issued	Revenue from long-term projects with up-front cash collection

Periodicity

- Divides time into *artificial* segments to understand a firm's changes over time
  - Fiscal year, fiscal quarter
  - Breadtalk: Jan 1 - Dec 31
  - Citigroup: Jan 1 - Dec 31
  - Microsoft: Jul 1 - Jun 30
  - Walt Disney
    - 2016: Oct 2 - Oct 1
    - 2015: Oct 4 - Oct 1
    - 2014: Sept 28 - Oct 3

BreadTalk®

Citi

Walt Disney

Microsoft

Don't focus on this too much for this class

Revenue recognition principal

- Recognize revenue in the **period** it was earned
  - May not be when cash is received
- Goods revenue recorded when it is *more likely than not*
- Service revenue recorded at the percentage complete
  - If 50% of the work is finished, record 50% of the revenue
  - If 20% of the work is finished, record 20% of the revenue

This will lead to a lot of tricky accounting, but mostly around period ends

Recognizing revenue

- Record revenue when:
  - Revenue can be measured *reliably*
  - Economic benefits are *more likely than not*
- For goods, you also need:
  - Transferred *significant risks* to buyer
    - If we are shipping [FOB destination], wait until received
    - If they handle shipping [FOB shipping point], wait until picked up for delivery
  - No continuing managerial involvement (*to an extent*)
  - Costs incurred from transaction can be measured *reliably*
- For services, you also need:
  - Stage of completion can be measured *reliably*
  - Cost incurred to date and costs to finish can be measured *reliably*

Matching principal

- Match expenses to the revenue within a **period**
  1. Identify what expenses were incurred
  2. Measure them
  3. Match to the revenues
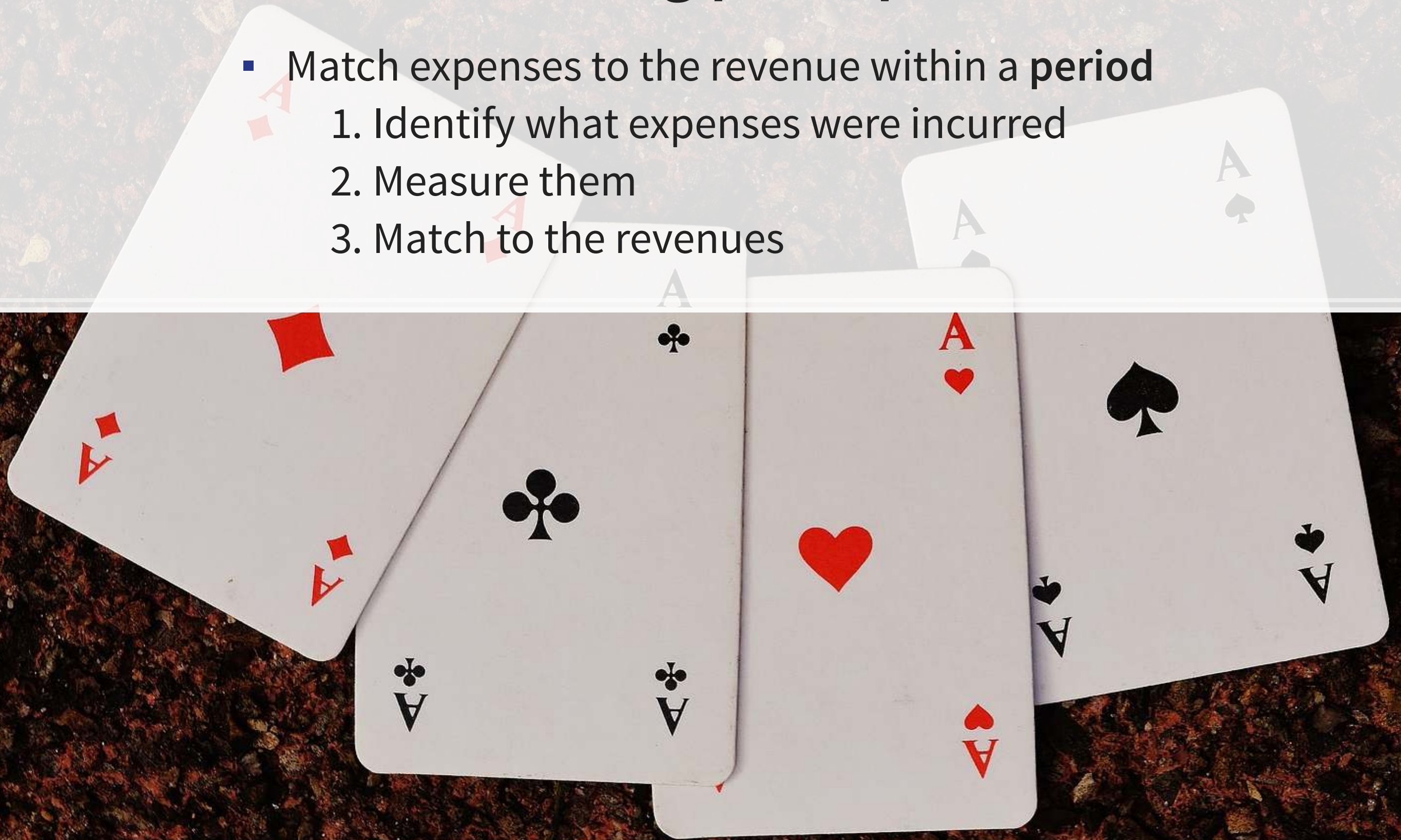
Expense recognition

- Recognize expenses **only** when an asset is used
  - Asset purchase ≠ expense
- Formally, expenses are recognized when:
  1. Obligations are incurred, such as on receipt of goods or services have been received
  2. Obligations are offset against recognized revenues (matching principle)

Expense matching

- 3 ways to match
- Directly
  - The expense is easy to track to an account
    - Ex.: Inventory
- Indirectly (over a period)
  - The asset has a long life or is difficult to track
    - Ex.: Buildings
- With acquisition
  - Simultaneous usage and acquisition
    - Ex.: Utilities, rent, labor
- Often *prepaid expenses*
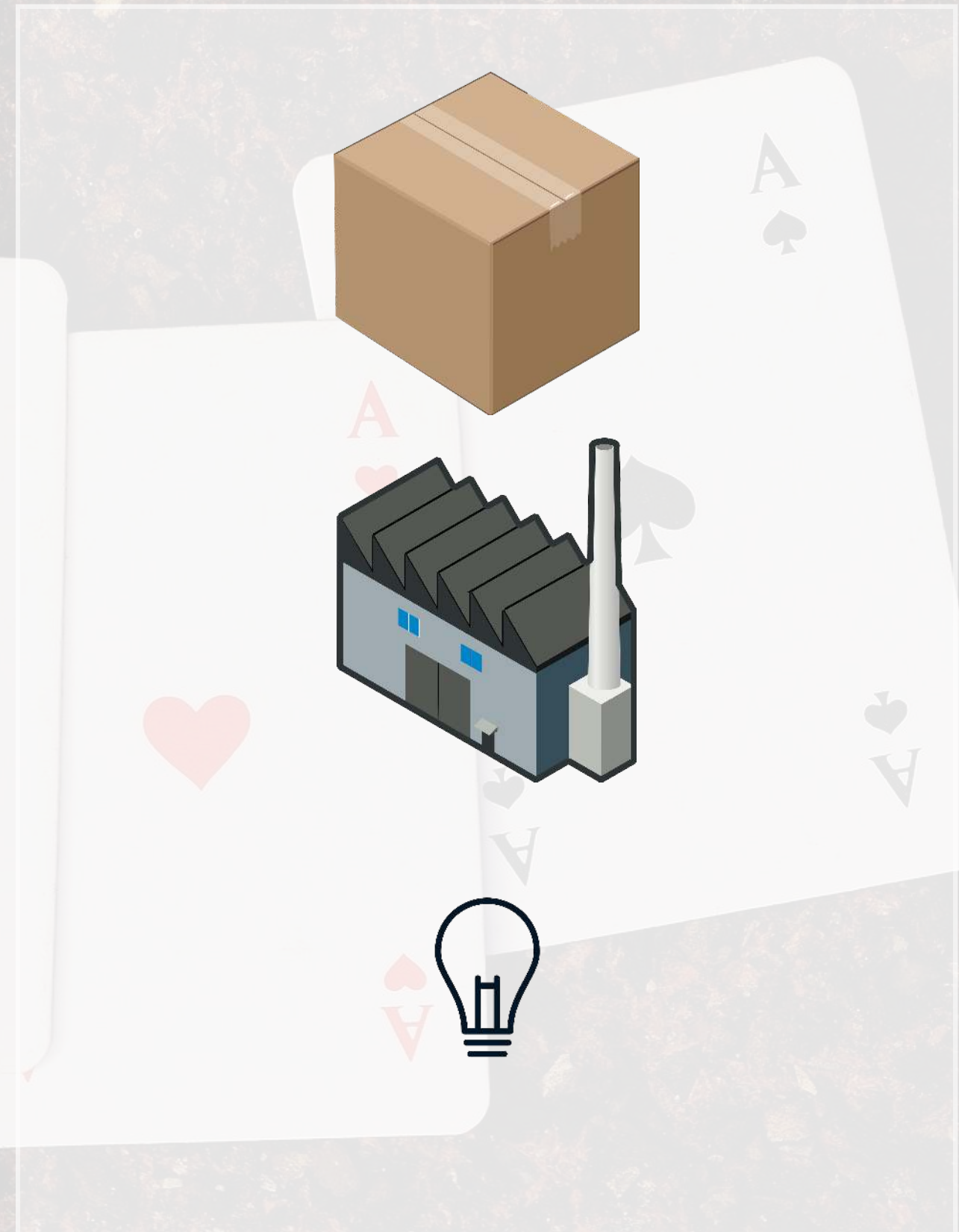
When should we record…

1. A sale we are shipping at our expense
2. A sale we are shipping at the buyer's expense
3. Revenue for a week long consulting project paid for up front
4. Electricity usage
5. Building usage (our building)
6. Sale of inventory for revenue

When should we record…

1. A sale we are shipping at our expense
   - Once the product reaches the buyer
2. A sale we are shipping at the buyer's expense
   - Once we ship the product
3. Revenue for a week long consulting project paid for up front
   - Once the project is finished
4. Electricity usage
   - When billed or at period end (matching principle)
5. Building usage (our building)
   - At period end (matching principle)
6. Sale of inventory for revenue
   - At the time the revenue is recognized

Adjustments

Why do we need to adjust?

- The matching principle
    - Everything needs to match at period end
- All day-to-day accounts are OK as is
- Do before balance sheet and income statement
    - Adjustments will go to the trial balance
- Why not do this continuously?
    - Too costly – some accounts continuously change
    - Investors only see period-end statements anyway

We'll only do this at period end

What do we need to adjust?

- Adjustments needed to:
  - Asset values
    - Prepaid expenses
    - Inventory, supplies, etc.
    - Noncurrent assets
  - Liabilities
    - Payables we have yet to recognize
    - Unearned revenues
- Balanced by:
  - Revenues
  - Expenses

- **All** adjustments affect:
  - 1 B/S account
    - Assets
    - Liabilities
    - Equity excluding revenues/expenses
  - 1 I/S account
    - Revenue or expense
- **NEVER** affects cash

Adjusting entry types

- *Deferral*
    - Adjust for prepaid expense (some used)
    - Adjust for unearned revenue (some may be earned)
- *Depreciation*
    - Some long term assets have been used up
- *Accrual*
    - Record an expense in advance

Deferral

- Adjustment for cash paid or received in advance
  - Expense or revenue has yet to occur
  - We *defer* some of it to the next period

Example: Deferred expense (previously recorded payment)

Date	Account	DR	CR
20YY.MM.DD	Rent expense	1,000	
	Prepaid rent		1,000
Prepaid rent of $2,000/month, 1/2 month passed			

Example: Deferred revenue

Date	Account	DR	CR
20YY.MM.DD	Unearned revenue	3,000	
	Revenue		3,000
Received compensation for 100 consulting hours at $100/hour, 30 hours complete			

Depreciation

- Adjustment for allocating the cost of *Property, Plant and Equipment* (PP&E) over its useful life
- Record to *accumulated depreciation*
- Asset's book value is asset account minus accumulated depreciation
- Depreciate to salvage value
  - What you expect to get when it is used up

Example: Depreciation of equipment

Date	Account	DR	CR
20YY.MM.DD	Depreciation expense	5,000	
	Accumulated depreciation -- Equipment		5,000
Equipment depreciated by $5,000 during the year			

Depreciation methods

- Straight line
  - Same amount each period
  - If N periods, S salvage value, H historical cost:
    - $(H - S)/N$ per period
- Units of activity
  - Expense based on units produced
  - Good if capacity is known and tracked
- Declining balance
  - More depreciation early on, less later

Accrual

- Accrued expense: debit expense, credit liability

Example: Accruals: utilities expense and tax expense

Date	Account	DR	CR
20YY.MM.DD	Utilities expense	250	
	Utilities payable		250
1/2 month of unpaid utilities expense, typical month is $500			
20YY.MM.DD	Tax expense	20,000	
	Tax payable		20,000
Expect to owe $20,000 in income tax for the period			

- Accrued revenue: debit asset, credit revenue

Example: Accrued service revenue

Date	Account	DR	CR
20YY.MM.DD	Accounts Receivable	1,000	
	Revenue		1,000
Performed 10% of $10,000 contract, with payment on completion			

Overall effects

Type	Asset (↑=DR)	Liability (↑=CR)	Expense (↑=DR)	Revenue (↑=CR)
Deferal: prepaid expense	↓		↑	
Deferal: unearned revenue		↓		↑
Depreciation	↓		↑	
Accrual: accrued expense		↑	↑	
Accrual: accrued revenue	↑			↑

Adjusting entries

1. Return to the in class activity
2. 3 adjusting entries to add in
3. Do the three <mark>yellow tabs</mark>
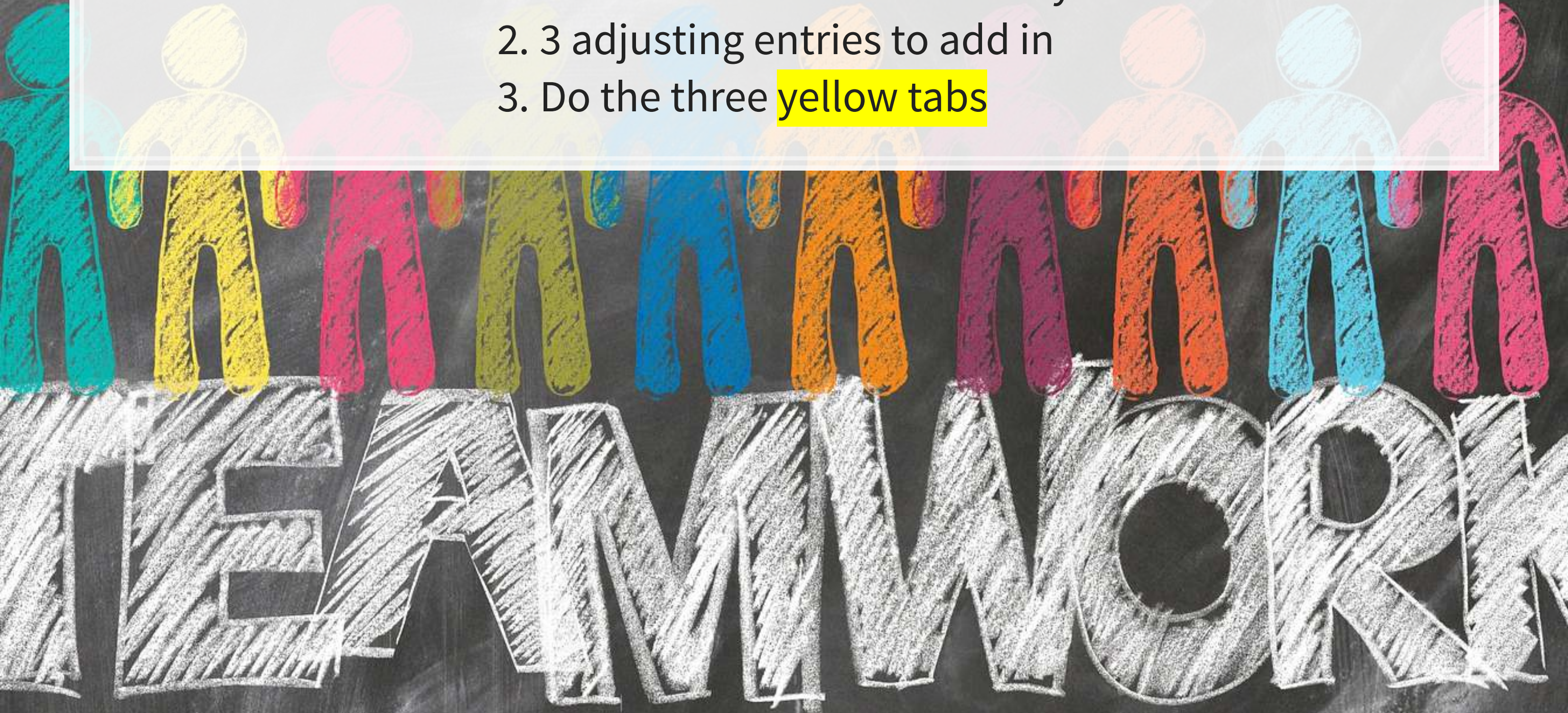
Closing the books

Closing the books

- Reset all temporary accounts to **0**
  - All revenues
  - All expenses
  - Dividends
- Credit temporary accounts that have a debit balance
  - Expenses, losses
- Debit temporary accounts that have a credit balance
  - Revenues, gains
- Helps to track income through each period
  - Since all income-related accounts start each period with 0 balance

Reset temporary accounts at period end

- We close the accounts into *retained earnings* directly
  - Or close into *income summary*, and then close that into retained earnings
- Debit Revenue, Credit Retained earnings
- Debit Retained earnings, Credit Expense
- Debit Retained earnings, Credit Dividends
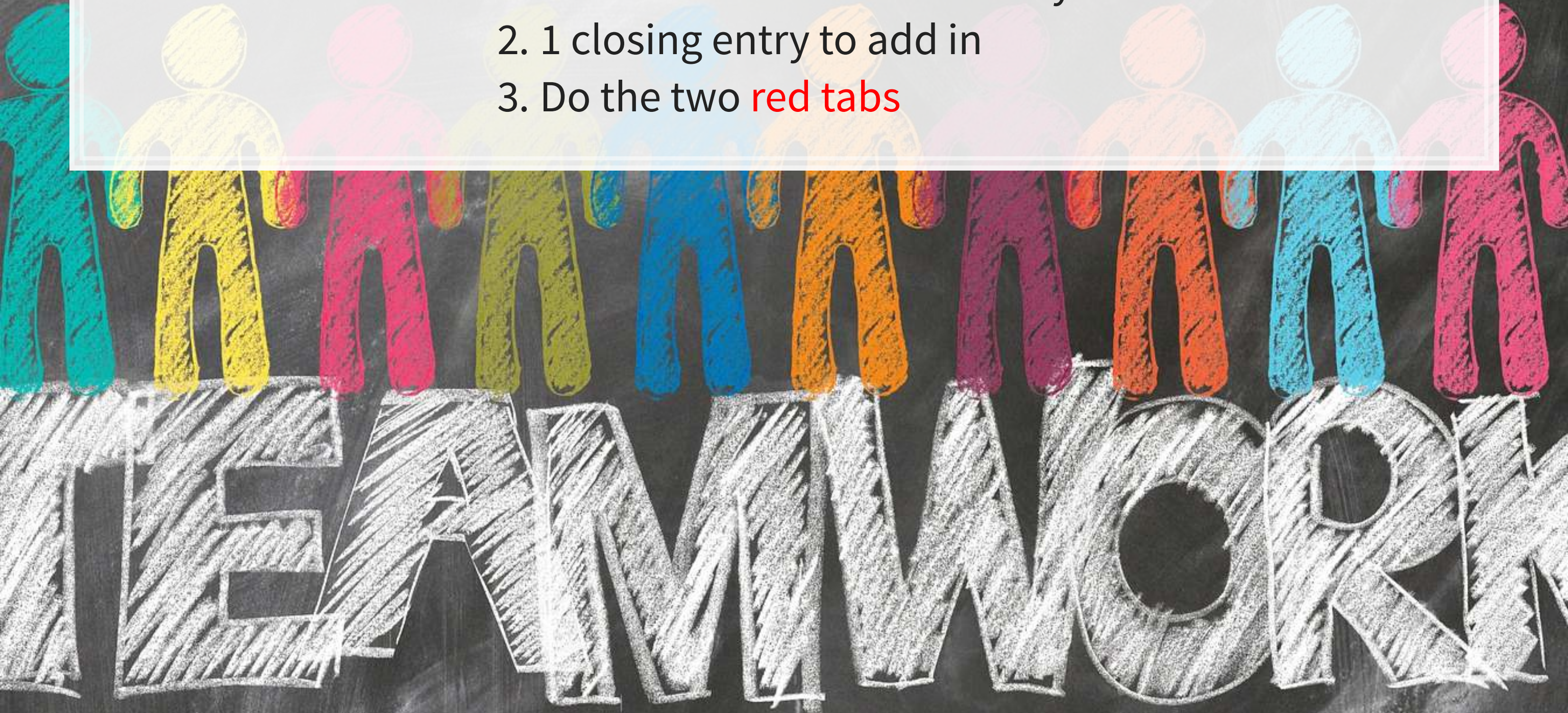
Example: Format for closing entry

Date	Account	DR	CR
20YY.MM.DD	Revenue	XX	
	Retained earnings (if decreased)	XX	
	Retained earnings (if increased)		XX
	Expense 1		XX
	Expense 2		XX
	...		...
	Dividends		XX
Closing entry			

Only include one of these

Closing entry

1. Return to the in class activity
2. 1 closing entry to add in
3. Do the two red tabs

For next week

1. Recap the reading for this week
2. Read the pages for next week
   - Capital Structure (Chapter 10)
   - Accounting Statements (Chapter 3, Part B)
3. Homework to *turn in next week*
   - Available on eLearn
   - Submit on eLearn
4. Practice on eLearn
   - Practice on journal entries
   - Automatic feedback provided