Ch 14 - Interest-Bearing Notes Payable

When working with an interest-bearing note, key information should always be gathered. This information includes the note's:

- Face (or stated) value
- Face (or stated) rate of interest
- Compounding frequency
- Due date
- Payment pattern, and
- Security or collateral information (for disclosure purposes).

In addition, before recording the first entry related to the note, most companies prepare an **amortization schedule**. Amortization schedules show the interest, cash payment, and carrying value amounts at various points in time over the note's life. From an accounting perspective, amortizations are useful for several reasons. In essence, they can "prove" the time value of money calculations were done correctly, and they can aid in the preparation of journal entries.

When working with amortization schedules, these important patterns should always be observed:

- ✓ The carrying value (CV) on the initial date should always be equal to the note's present value
- ✓ Cash payments reduce the carrying value
- ✓ Interest increases the carrying value
- ✓ The carrying value on the maturity date (after all cash payments) should be zero.

Note to Students: In this course, we will round all interest calculations to the nearest whole month and whole dollar. Unless told otherwise, you should also assume the company has a calendar year-end.

Example #1 (Term Note): Note's principal plus interest due at maturity

On January 1, 20X1, Tabor Inc. financed the purchase of equipment costing $600,000 by taking out a 12%, 2-year loan. Interest is compounded annually. Both interest and principal will be due when the note matures on January 1, 20X3.

Question: What is the present value of this note? In other words, if Tabor had paid cash to purchase the equipment, how much would it have paid?
Answer: The present value is $600,000.

Question: What is the future value of this term note? In other words, how much cash will Tabor pay in two years to pay off the loan's face value plus compounded interest?
Answer: Let's use time value of money techniques to solve for future value.

Present Value (PV) =
Total number of compounding intervals (n) =
Interest rate per compounding interval (r) =
Future Value (FV) = ?

Question: How much total interest will the company pay on this note?
Answer: The calculation of total interest should be relatively straightforward to solve.

Total amount borrowed or financed	$600,000
Total amount paid back	752,640
Total interest	$152,640

Calculating this total can serve as an "accounting check" on our amortization schedule. The amortization schedule for this note is as follows:

Date	Cash Paid	Interest Expense	Carrying Value
1/1/X1			
1/1/X2			
1/1/X3			
1/1/X3			
Total			

Notice that the total interest expense amount of $152,640 agrees to our earlier calculation.

The journal entries for this note are as follows:

Date		Debit	Credit
1/1/X1			
12/31/X1			
(year-end)			
12/31/X2			
(year-end)			
1/1/X3			

Accounting checks should be performed by either posting these entries to t-accounts or using the calculator to determine account balances. The answer should be "yes" to each of these questions.

Question	Answer
Is the "Note Payable" account balance equal to zero on the maturity date?	
Is the "Interest Payable" account balance equal to zero on the maturity date?	
Is the sum of the debits to the "Interest Expense" account equal to the total interest amount on the amortization schedule?	
Is the sum of the credits to the "Cash" account equal to the total cash paid amount on the amortization schedule?	

Example #1 (continued):

How would our entries be different if we kept the terms of the note the same, but changed the company's year-end to March 31?

The amortization schedule would be the same. The amortization schedule dates should be based on the terms of the note. However, the interest amounts will be prorated to account for the difference between the annual interest on the amortization schedule and the different interest periods in the journal entries.

Assuming a new year-end of March 31, the journal entries for this note are as follows:

Date		Debit	Credit
1/1/X1	Equipment	600,000	
	Note Payable		600,000
3/31/X1	Interest Expense		
(year-end)	Interest Payable		
3/31/X2	Interest Expense		
(year-end)	Interest Payable		
1/1/X3			

Accounting Checks:

Question	Answer
Is the "Note Payable" account balance equal to zero on the maturity date?	
Is the "Interest Payable" account balance equal to zero on the maturity date?	
Is the sum of the debits to the "Interest Expense" account equal to the total interest amount on the amortization schedule?	
Is the sum of the credits to the "Cash" account equal to the total cash paid amount on the amortization schedule?	

Term notes can have different interest patterns. For example, interest may be due periodically while the face value may be due when the note matures.

Example #2 (Term Note): Interest due annually and note's principal due at maturity

On January 1, 20X1, Tabor Inc. financed the purchase of equipment costing $600,000 by taking out a 12%, 2-year loan. Interest is payable annually on January 1, beginning January 1, 20X2. The principal will be due when the note matures on January 1, 20X3.

Question: What is the present value of this note? In other words, if Tabor had paid cash to purchase the equipment, how much would it have paid?
Answer: The present value is $600,000.

Question: What will be the total cash payments on this note over two years?

Answer: One year's worth of interest is $72,000, calculated by taking $600,000 x 12%.
Since interest is paid annually, the second year's interest amount is also $72,000.

Question: How much total interest will the company pay on this note?
Answer:

Total amount borrowed or financed	$600,000
Total amount paid back ($72,000 + $72,000 + $600,000)	744,000
Total interest	$144,000

This total can serve as an "accounting check" on our amortization schedule.

The amortization schedule for this note is as follows:

Date	Cash Paid	Interest Expense	Carrying Value
1/1/X1			(present value) 600,000
1/1/X2			
1/1/X3			
1/1/X3			
Total			

The journal entries for this note are as follows:

Date		Debit	Credit
1/1/X1	Equipment (equals the present value or cash equivalent price)	600,000	
	Note Payable (equal to face value)		600,000
12/31/X1	Interest Expense	72,000	
(year-end)	Interest Payable		72,000
1/1/X2	Interest Payable	72,000	
	Cash		72,000
12/31/X2	Interest Expense	72,000	
(year-end)	Interest Payable		72,000
1/1/X3	Interest Payable	72,000	
	Note Payable	600,000	
	Cash		672,000

Accounting checks:

Question	**Answer**
Is the "Note Payable" account balance equal to zero on the maturity date?	Yes
Is the "Interest Payable" account balance equal to zero on the maturity date?	Yes
Is the sum of the debits to the "Interest Expense" account equal to the total interest amount on the amortization schedule?	Yes
Is the sum of the credits to the "Cash" account equal to the total cash paid amount on the amortization schedule?	Yes

The next set of notes will go over installment notes.