Teaching Chess the Easy and Fun Way with Mini-Games

Teach Clear Thinking
Promote Math Skills
Enhance Memory & Reasoning

Supporting the Common Core State Math Standards

Kathy Price
Andre E. Zupans

Teaching Chess the Easy and Fun Way with Mini-Games

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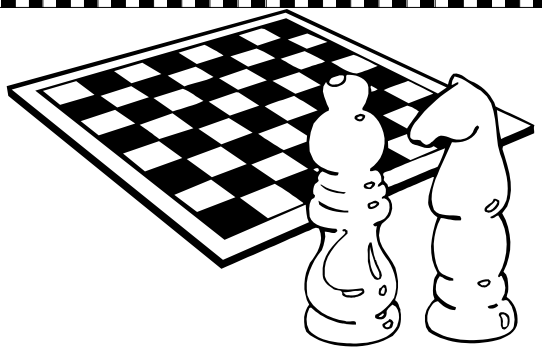
About the Authors

Kathy Price has over 30 years experience as a gifted program and special education teacher and math/science curriculum specialist. She developed this system of teaching chess to entire classrooms by trial and error with students in 1st through 6th grade classrooms. When one adult is facing 24 eager second graders with a variety of skills and interests, it became necessary to have an effective format that allows effective teaching and learning within constrained time limits to take place. Teaching chess with Mini-Games is the system that resulted. Mrs. Price ranks her chess playing skills one notch above her students (most of the time) giving credence to the fact that you don't need to be an accomplished player to be a great chess teacher to young children.

Andre Zupans is a writer, publisher, paralegal, professional trader/investor, educator and chess player. As an educator, Andre has found that chess enhances all intellectual activities. He is a highly rated chess player and has even defeated players at the Masters level. Andre discovered that un-packing the game of chess in small Mini-Games was an effective way to teach chess. This educational guide has been designed on this principle. Happy playing for all!



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Introduction

The value of teaching chess to elementary age children is well researched. Occasionally we see schools that offer optional chess clubs or after school programs but rarely we see it instituted in a whole classroom. Why? It is because most teachers do not know how to play or more importantly don't have an effective system to teach chess to 24 or more active elementary students at once. ***This book is for that teacher!***

You do not need to know how to play, you will learn along with your students while at the same time providing an effective multidisciplinary lesson that tie into your educational standards and objectives.

The methods and lessons describe in this book deviate from other prescribed chess teaching methods for one major reason. ***They can be taught by a non-player, and they work!*** Liberties are taken that may make chess "purists" cringe. When working with a class of students you must realize virtually none of them will pursue a career in chess, therefore what is of most importance is that by teaching them a recreational game they can play for life you are instilling other skills that will ***positively influence*** their other educational endeavors.

Chess provides students an approach to learn and use reasoning skills. These skills then carry over to other educational and life endeavors. The mini-games and activities in this book are designed to correlate with many of the Common Core State Standards for Mathematics, thus making wise choices with precious classroom time.

The **National Scholastic Chess Foundation** states that Chess education is extremely effective with children because:

- Chess involves all levels of critical thinking (knowledge, comprehension, analysis, evaluation)
- Chess requires forethought and cultivates visualization skills
- Chess improves problem solving skills
- Chess encourages children to overcome the fear of risk-taking
- Chess teaches concentration and self-discipline
- Chess enables children to assume responsibility for their decisions
- Chess rewards determination and perseverance
- Chess raises self-esteem and promotes good sportsmanship
- Chess encourages socialization skills that extend across cultures and generations
- Chess is fun!

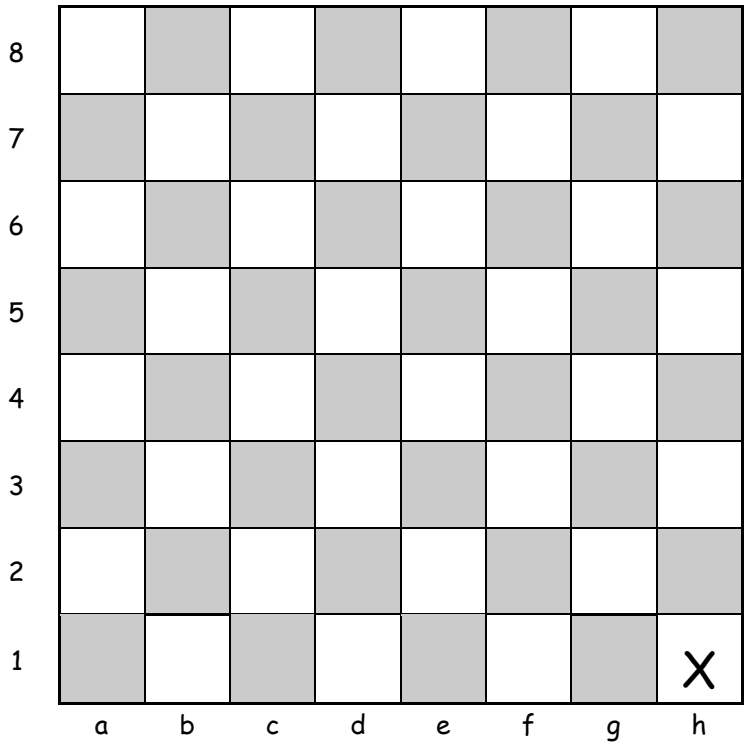
Basic Chess Information

The game of chess is over 1300 years old and is one of oldest and the most popular games in the world. Chess is a two-player strategy game between two armies with 16 pieces for each player. The objective of the game is to place the opponent's King into checkmate, which means the King is trapped. Chess is easy to learn, but can take a lifetime to master.

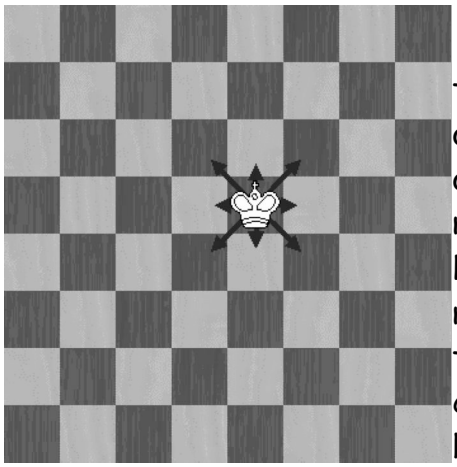
The Pieces and their Basic Moves

In most chess books and on computers you will see the pieces represented by icons. However, it is easier when drawing on a classroom chalk or white boards to use letters when discussing pieces. Therefore all the diagrams we use in the mini-game method use those letters.

The game of chess is played on a board of 64 squares, each square has a designated name or coordinate. The horizontal squares, or ranks are numbered 1 to 8. The vertical squares, or files, are lettered from A to H. For example, h1 is the right hand corner square marked with an "X".

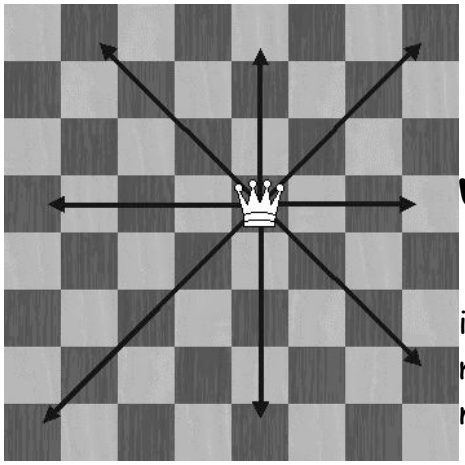


King (K - black, k - white)



The king is the most important piece in the game of chess. This is because the objective of the game is to capture your opponent's king. The king has the ability to move one space in any direction. However, the king can not put himself in danger, which means two kings can never be side by side. If the King can be captured he is said to be "in check". If he can not move to a square where he is not threatened, and if the checking piece can not be captured or blocked, the King is checkmated and the game is over.

His value is "priceless"!

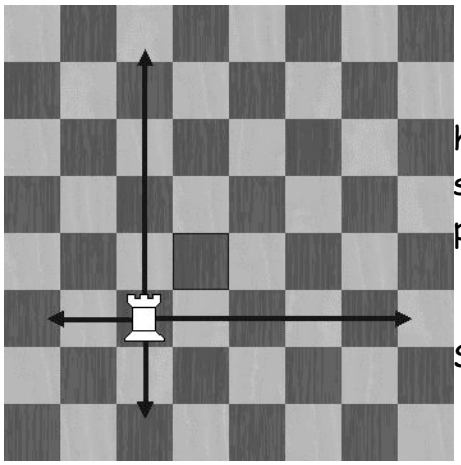


Queen (Q – black, q – white)

The queen may not be the most important piece on the board, but she is the most powerful piece. The queen can move any number of spaces in any direction.

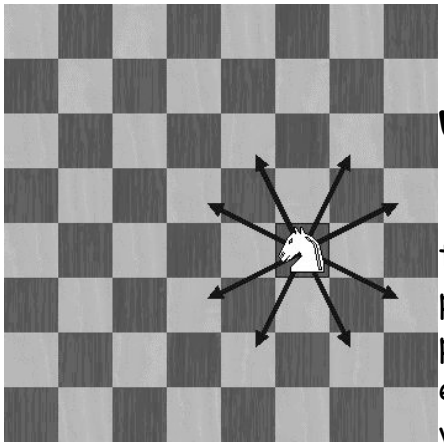
For our mini-games her value is $.90.

Rook (R-black, r – white)



The rook has the ability to move horizontally or vertically any number of squares in any direction. Some people call this piece the "castle".

The rook, also a powerful piece, is worth $.50.

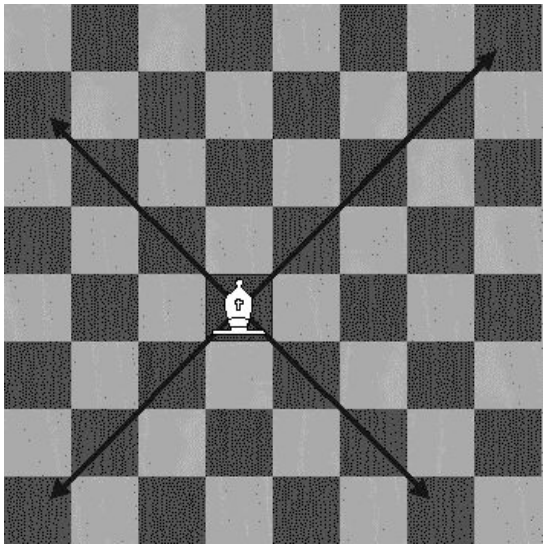


Knight (Kn – black, kn – white)

The Knight is a minor, yet vital, piece in the game of chess. The knight, unlike any other piece on the chessboard, can 'jump over' pieces. The knight moves in an 'L' shape moving either two spaces horizontally and one space vertically, or two spaces vertically and one space horizontally. We teach the students "1, 2, over".

The Knight has a value of $.30

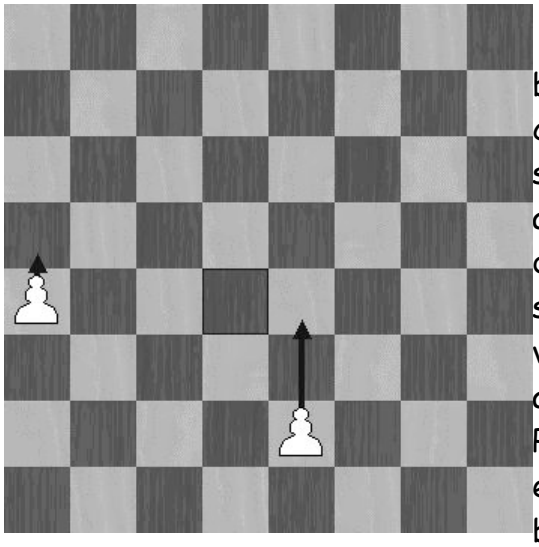
Bishop (B – black, b – white)



The Bishop is the second minor, yet vital, piece in the game of chess. The Bishop can move diagonally any number of squares in any direction.

The Bishop also has a value of $.30.

Pawn (P – black, p – white)

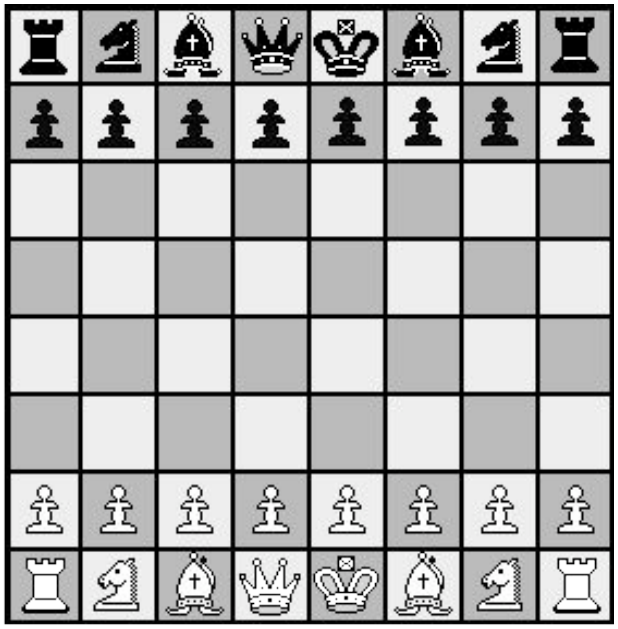


The pawn can be the difference between winning and losing a game of chess. Pawns can only move forward one space however; from its starting position a pawn can advance two spaces. Pawns don't capture pieces by advancing straight into them horizontally or vertically; instead they capture pieces by advancing diagonally into the piece. The Pawn's special ability is that it can be exchanged for a queen, rook, knight, or bishop when it reaches the last square on the other side of the board. But remember, they can never move backwards!

The Pawn is worth $.10.

Position of all the pieces on the board at the beginning of a "Full" game.

R	Kn	B	Q	K	B	Kn	R
P	P	P	P	P	P	P	P
p	p	p	p	p	p	p	p
r	kn	b	q	k	b	kn	r



Rules to Remember

- The white Queen goes on a light square (sometimes red), the Black Queen on a dark square ("Queen on her own color").
- The square in the lower right hand corner is a red one, i.e. "red on right" or the white one: "light on right".
- The opposing Kings and Queens go directly opposite of each other.
- White moves first, and then each player takes a turn moving.
- If you take your hand off a piece your move is over, UNLESS you made an illegal move.
- During each player's turn, only one piece may be moved.
- The Knight is the only piece that can jump over other pieces.
- All other pieces can only move along unblocked lines.
- You may not move a piece to a square already occupied by one of your own pieces, but you can capture an enemy piece that stands on a square where one of your pieces can move. Simply remove the enemy piece from the board and put your own piece in its place.
- You may not detract or annoy your opponent in any manner whatsoever.
- Many beginning games end in a draw or stalemate. This happens when a King is forced to move and cannot do so without putting himself in check. See other examples below.

How to Win

When the King is attacked the player should say, "Check". There are then three things that could happen:

1. The King moves to safety.
2. Another piece moves in to block and protect the King.
3. Another piece captures the piece that was attacking the King.

If none of these can happen the King is trapped, which is called "Checkmate", and the game is over! The King is the ONLY piece that can never be taken off the chess board during a game.

Necessary Conditions for a Checkmate:

- Is the King in check?
  - Answer must be Yes.
- Wherever the King moves, is it check?
  - Answer must be Yes.
- Can any other chess piece block the check?
  - Answer must be No.
- Can the King capture the checking piece?
  - Answer must be No.

Necessary Conditions for a Stalemate:

- Is the King in check?
  - Answer must be No.
- Can the King move to a square that it's **Not** in Check?
  - Answer must be No.
- Does the King's army have another chess piece it can move?
  - Answer must be No.
- Does it have to be the King's side move?
  - Answer must be Yes.

What is a draw?

Unlike a stalemate, a draw or tie can occur when neither side has sufficient chess material to checkmate. The players can also agree upon a draw. Also, a repetition of moves can end in a draw. In classrooms an easy to remember rule is "Ten to Tie", thus allowing players to agree to count 10 moves before declaring a stalemate.

Minimum Chess Pieces to Checkmate

King and Queen King and Rook
King and two Bishops King, Knight and Bishop
King and Pawn (if promoted to Queen or Rook)

Stalemates or Draws are both ties. In tournament play, a win is one point, a draw is ½ point and a loss is no point. Stalemates are very rare in high level play, but are frequent occurrences in beginning play.

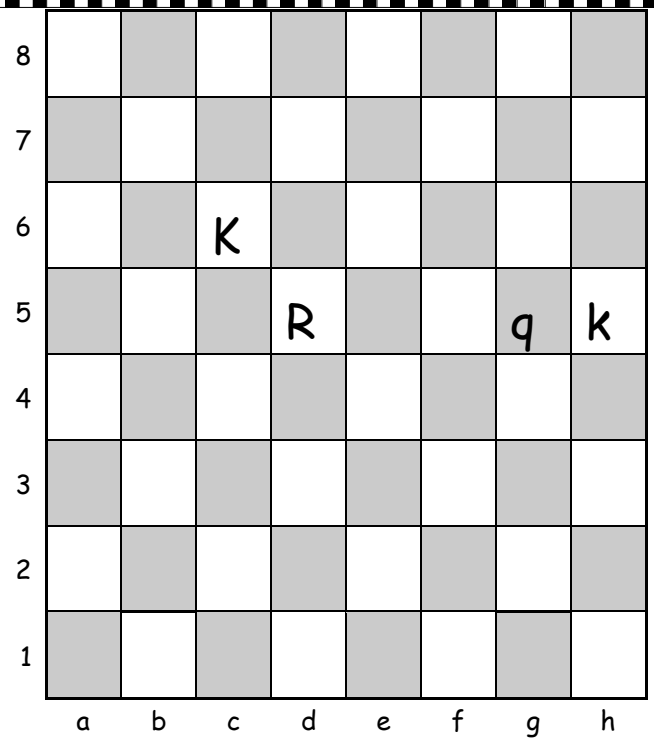
If you are not quite ready for this stage then you can also add up the value of the piece captured and the army with the most value left is said to have the advantage!

Capturing

Each chess piece has a specific movement. When a piece moves into the movement path of an enemy piece it can be captured and removed from the chess board. However, the Knight captures only on its destination square.

Protection

When a chess piece is captured, other chess pieces may be able to capture it back. This is called protection. In this first example the White Queen captures the Black Rook. The Black King protects the Black Rook. This means the King can capture the Queen.

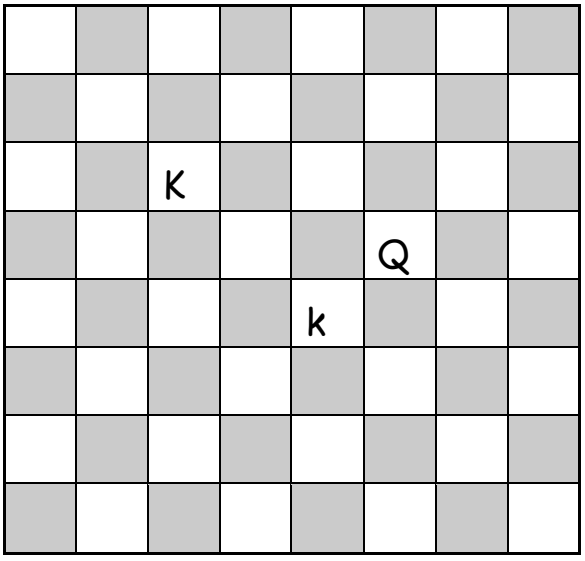


The White Queen captures the Black Rook.

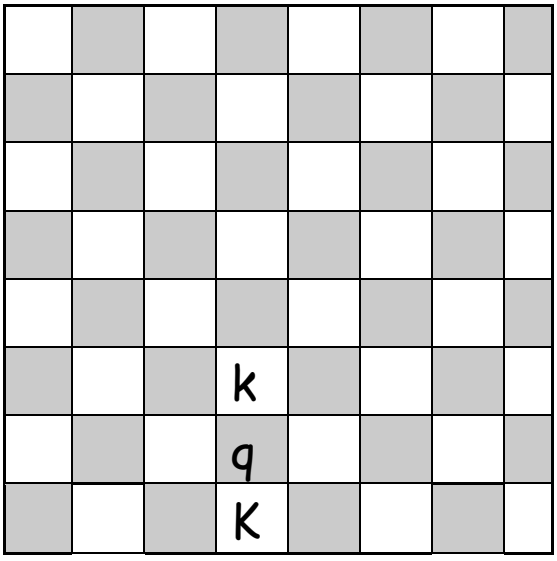
The Black King protects the Black Rook.

This means the Black King can capture the White Queen.

An important concept in Protection is that a King cannot capture another chess piece if it's protected. The two examples exemplify this point.



The White King CAN capture the Black Queen



The Black King CANNOT capture the White Queen
This is an example of CHECKMATE.

Classroom/Club Management

One reason many teachers give for not incorporating more hands-on activities in their classroom deals with management issues. Don't even think about trying to store many chess games in individual boxes. Storage and space is always an issue for most classrooms/clubs. You don't need to invest in high dollar materials.

- The most effective way to store large amounts of chess kits is to put each game set of pieces in a re-closeable sandwich size plastic bag and stack all the board together in a cardboard box the size for reams of copying paper. The bags can also fit in along with printed materials making storage easy.

- Keep a butter tub to put the missing pieces that are found and when time to play empty into the inverted top of the storage box for easy picking.

- During mini-games have students return the pieces they are not using back into the plastic bag.

- If you are working with large groups or several classes, rectangular cafeteria tables are usually good playing areas. Having some helpers put out the boards and bags of pieces allows players to quickly find a seat. Designate others as "Brave Knights" to help gather boards and bags when finished.

- Using an interactive white board or a document camera to project a large chessboard can help students follow instructions. The Resources section has such a board.

- Start some routines, rituals, and repetitions during your chess time. These anchor students' learning and are often an emotional hook or reinforcement of a positive classroom or club culture. For example: End a session by gathering students in a circle, quickly review what happened during the lesson, have them place their hands over their

head like the cross on the King's crown, count down from ten and slowly lower their bodies and on zero "blast off" by jumping in the air chanting "Chess is the Best!"

- Playing music during transition times is a good strategy. Both calming songs and upbeat music can refocus attention. Appropriate songs that have "chess themes" can be downloaded from iTunes including those from the soundtrack of "Searching for Bobby Fischer".

Using effective questioning techniques with students can make the difference in student learning. The questions need to be asked with genuine curiosity and the discussions these questions raise need to be held in an emotionally safe environment. The goal here is to notice and recognize. Model and encourage students to ask one another clarifying questions and avoid judgments and comparisons.

Core Questions:

- **When you first heard the instructions for this activity what did you think? (i.e., "I don't know how to do that.", "That sounds fun!", "What did she/he say?", "I have never done that before", etc.)**
- **How did you feel? (i.e., "confused", "curious", "scared", "eager", "happy", and "mad", etc.).**
- **What did you do? ("Started doing what I was told to do.", "looked at the teacher", "watched and did what my friends were doing", "sat still", "waited", etc.)**
- **What part of the activity surprised you? Confused you? Made you curious? etc**

Mini-Game Lesson Plans

The order of these mini-game lessons can be modified depending upon students age and prior chess knowledge. To differentiate in a large group, more advance students can do more than one mini-game while others can spend more time mastering a single game.

When introducing these games to a class where a few students already know the game, explain to them that these games are intriguing warm ups for a full game and you want them to try them along with the rest of the class and then they are free to move into a full game. Analogies to football, soccer, or other sport warms-ups are applicable.

Think about using **How Many Squares Do You See** located in the Resources as part of a math lesson before starting to play games.

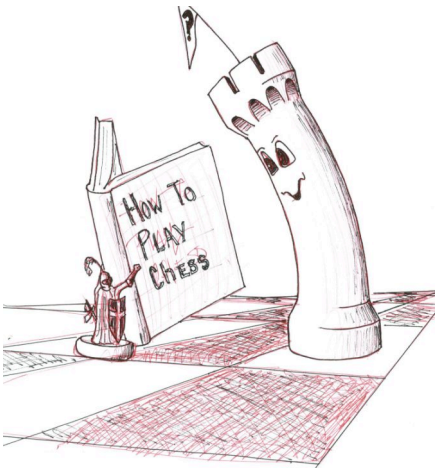
A good rule of thumb for all lessons is to follow this model:
Engage students with anticipation of the upcoming game and materials.
Explore - Have students actively move their bodies and pieces as they learn how pieces move
Explain - Use models and visuals to support directions
Elaborate - Allow students opportunities to adjust games
Evaluate student learning through observations and journaling.

Tip – Try to keep your talking to less than 5 minutes at a time. All students need to move pieces and practice with their bodies as much as possible.

Tip – Each child needs a chess journal to keep notes and drawings (see graphic organizers). Reflecting on the day's game is a great way to tie in writing skills.

Tip – On each lesson spend one day teaching the lesson and then have another time when students practice the mini-game(s) before moving on.

Tip – Use large tile floor squares to have children practice moving their bodies like the piece moves. You can also use rubber cones and have them move them on the floor or even outside on a blacktop with a chalk drawn chessboard.



Frontloading -Introduction to Chess

Engage: Begin by having boards and pieces out for students to explore. As a class or in groups brainstorm and record what prior knowledge they have with chess. Some students may want to compare it to checkers, listing similarities and differences.

Explore: Let students look closely at the pieces. Some may have seen different versions of chess online or at home. This is a great time to build vocabulary and gather students' prior knowledge!

Explain: Discuss that chess is one of the oldest strategy games in the world and played everywhere. Use the "Did you now" pieces of information in the resources section and challenge your motivated learners to find out more about the game. Focus on key vocabulary and have students write questions where the word is the answer. . For example you write **check** and a child might say "What do you say when you attack the King?"

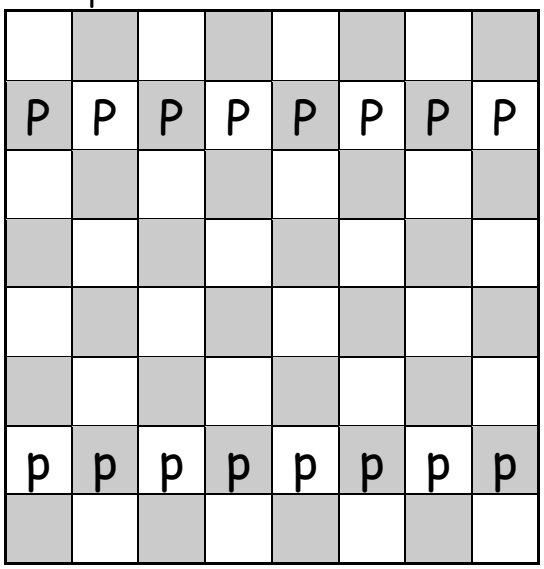
Depending on the age ad level of your players decide with which Mini-Game you want to begin. This will start a rewarding journey, which at the end will establish a classroom of chess players. Remember every great player was once a beginner!

Lesson 1 - Pawn Parade

Vocabulary – strategy, opponent, illegal, move, check, checkmate, capture, array

Intention - Introduce students to the concept of "mini-games" to gain proficiency in using pawns.
Warm up – Write one of the vocabulary words on the board and have the students create a question where the word you wrote is the answer.

Set up:



Inform students the purpose of this game is to move their pawn to the other side of the board. The player who gets the most pawns over "wins". If you are doing this lesson around Christmas you can also call it an "Elf Parade"! Be creative! Be sure to have students change colors each time they play.

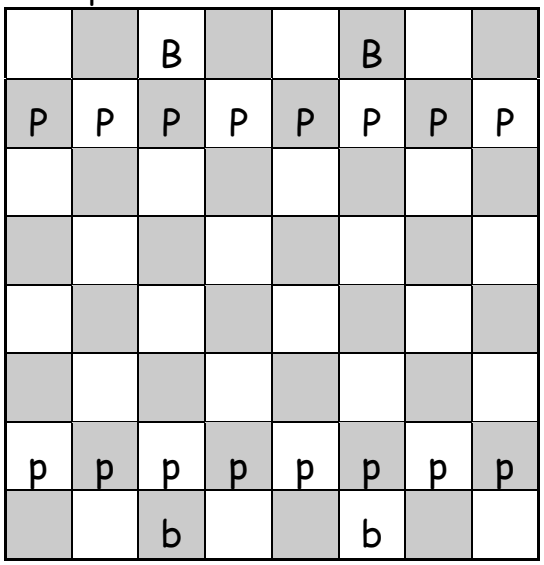
The pawns move only one space forward, except to capture when they can move one space diagonally forward. Two pawns that meet "head on" are stuck and cannot move. Have students practice these moves with their bodies. It's especially easy if the flooring is tile! The second exception is their first move, when they can move two spaces forward.

Wrap up: Hae students talk to one another about what they will tell their family about chess when they go home.

Lesson 2 - Bishop's Beware

Intention: This game helps beginner player's become more aware of having a bishop on opposing colors.

Set up:



Introduce the movements of the bishop (any number of moves diagonally) and point out they have one on each color.

Play

Wrap up –Orally summarize what has taken place. Have students write one or two summarizing sentences in their journal.

Lesson Notes

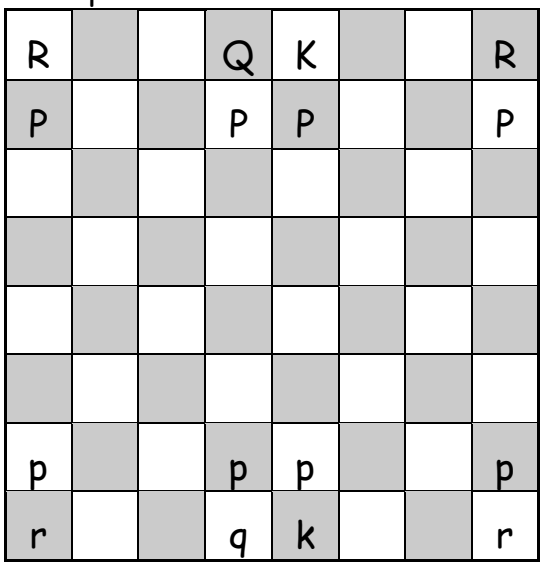
Lesson 3 – Queen-Rook Checkmate

Vocabulary – strategy, opponent, illegal, move, check, checkmate, capture, array, anticipation

Intention: Introduce the concept of check and checkmate.

Introduce the movements of the King (your most important piece), Queen (most powerful), Rooks, and review how Pawns move. White pieces always move first, if you take your hand off a piece your move is over UNLESS you made an illegal move.

Set up:



Play

Wrap up –Orally summarize what has taken place. Have students write one or two summarizing sentences in their journal.

Lesson Notes

Lesson 4 – Horse Race

Vocabulary - noble

Intention: By now students are anxious to learn about the Knight. Introduce this piece kinesthetically by having them step around the room in the Knight pattern (1, 2, over) and making "L's" with their fingers. After they move about the room then just have them put their two knights on the board and practice moving their knights to the other side of the board.

Set up:

	Kn					Kn	
P	P	P	P	P	P	P	P
p	p	p	p	p	p	p	p
	kn					kn	

Play - the first to get a knights to their opponents home row wins. Take turns going first.

Wrap up - Summarize your lesson by comparing the knight and bishop.

Lesson Notes:

Lesson 5 – Last Man Standing

Vocabulary – fork, alternative

Intention: Practice moving and capturing. The last piece left on the board wins this mini-game.

Set up:

R	Kn	B			B	Kn	R
P							
p							p
r	kn	b			b	kn	r

After playing for a while stop and discuss the concept of a "fork" (when a piece has two options for capturing)

If you have time go back and play one of the previous mini-games.

Wrap up – Write several of the vocabulary words on the board and have students write sentences using them.

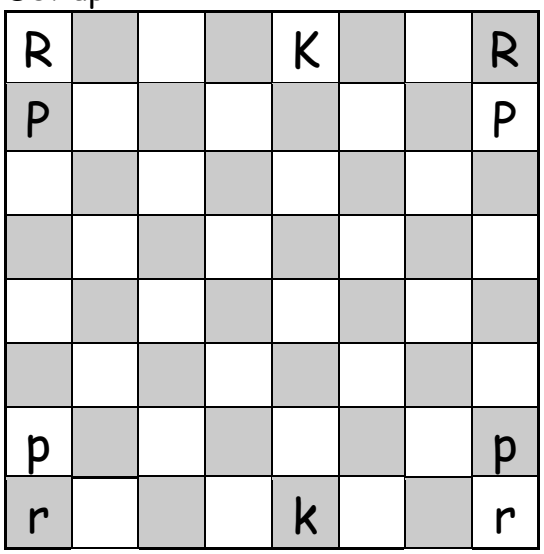
Lesson Notes:

Lesson 6 - The King's Nightmare

Intention: This game gives students practice using their rook to check and possibly checkmate the King.

Encourage students to view other boards when a checkmate occurs.

Set up:



Use your two Rooks to trap the King in a checkmate!
Your Rook moves horizontally or vertically.

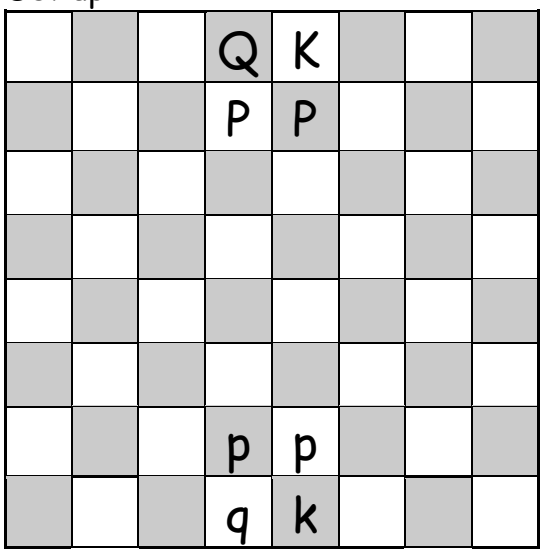
Wrap up – Write several of the vocabulary words on the board and have students write a letter to their family using them.

Lesson Notes

Lesson 7 - The Queen's Kiss of Death

Intention: Practice moving the powerful Queen.

Set up:



To win this game, the Queen must **Check** the King!

Queen – moves in a straight line any direction.

When students "win" have them switch partners to gain more experience with different players.

Wrap up: Let students draw pictures of their favorite pieces.

Lesson Notes

Lesson 7.5– Venturing into Values

Vocabulary – value, stalemate, advantage, attacker, defender

Intention: Introduce the concept of each piece having a numerical value.

Review how the pieces move (King, Queen, Rook and Pawn). Share with students the value of each piece (King – priceless, Queen - $0.90, Rook - $0.50, Pawn - $0.10) Have them add different combinations.

Allow students to choose any mini-game to play, but occasionally stop and have them do a "Value check" and add the value of the pieces they have captured. Discuss concept of having the "advantage" by value.

Wrap up - At the end of play have students write several "Chess Equations" for example: Q+R+R=$1.90 or P+P+P=$0.30 Let them share what they have done with others.

Lesson Notes

Lesson 8 - Show Me the Money

Intention: This is a fun game to use when time is very limited. It also is great mental addition practice for students.

Set up – All pieces are set up on starting squares.

How to win - As a class, determine the amount in value to be played for (the lower the amount the quicker the game). Also decide if the winner has to get exactly the amount or may go over it to win. (The strategies change depending on your criteria!)

Wrap up - Discuss if there are any sums that it would be impossible to get and why. Have students record the pieces they captured and write equations.

Lesson Notes

Lesson 9 - Half the Battle

Intention: Allow practice with fractions using the value of pieces. If students struggle with these concepts you may want to first play a class wide game with them against you before letting them go off on their own.

Set up - Student choice depending on the following criteria;

The Kind and Queen must cut their budget. Therefore they can only send **half** the value of their army into battle.

1. Decide what pieces you will use. Be ready to defend your budget.
2. Place the pieces (along with the King and Queen) in their starting positions.
3. Play until you have EITHER a checkmate OR have captured over half the value of your opponent's army.
4. Be ready to defend either orally or by journaling how you won, lost, or had a draw.

Wrap up: Have students describe orally or in writing what their budget was and the pieces they chose. Did their strategy work? Why or why not?

Lesson Notes

Lesson 10– Major Players

Intention: This game has students play with all their pieces, **except** the pawns. Have them play this several times, stopping to discuss strategy and the concepts of "exchanges" of major pieces. Ask them for periodic "value" checks of the pieces they have captured.

Set up:

R	Kn	B	Q	K	B	Kn	R
R	Kn	B	Q	K	B	Kn	R

After about 20 minutes add a new twist…tell them the first to "win" is the player that captures over $1.00 in value. They have to stay quiet and can only way 4 words: check, checkmate, or illegal move. They stand up when they "win". Then you switch partners around. It will only take a few times until they figure out a fast way to capture over $1.00. Then change the value to exactly $1.20. This gives them lots of mental math practice!

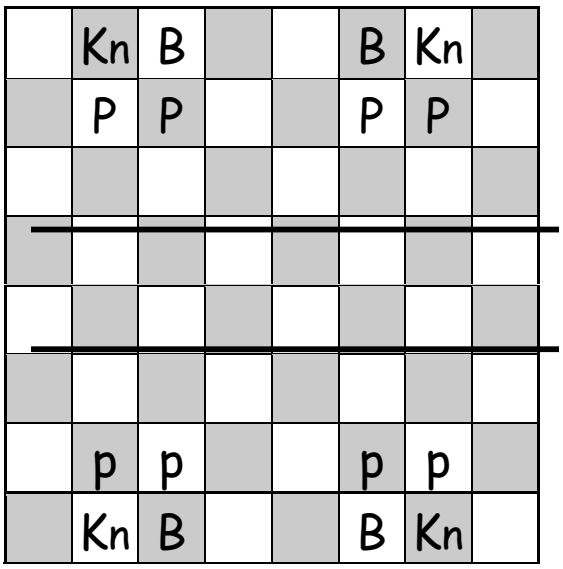
Wrap up – Have them each write two questions about chess, then switch papers and answer someone else's questions.

Lesson Notes

Lesson 11 - Medieval Minors

Intention: This game helps players become aware of the center of the board. Players that are even matched usually end up tied.

Set up: Cut two narrow strips of paper to create a fence on the two middle ranks (rows 4 & 5) to create a corral.



The player with the most pieces in the middle corral after 10 moves per player wins a point. Tie games are worth ½ point ½ point. First player to reach 5 points wins.

Wrap up: Invite students to share their winning strategies and note any commonalities.

Lesson Notes

Lesson 12– Seconds for Sixes

Intention: Students gain practice with multiples of 6 while playing with all pieces.

Set up:

R	Kn	B	Q	K	B	Kn	R
P	P	P	P	P	P	P	P
p	p	p	p	p	p	p	p
r	kn	b	q	k	b	kn	r

Explain if the pieces captured have a value that is a multiple of six then students get two turns in a row! (30, 60, 90, etc). The first player with three double turns win.

Wrap up: List different combinations of pieces that are multiples of 6.

Lesson Notes

Lesson 13 - Build an Army

Intention: This game gives players more flexibility in deciding procedures and gives practice in conflict resolution!

Set up - Players agree upon any 6 pieces for each color and place them in their starting position. Have the draw their starting position.

How to win – The first player to capture 5 pieces wins, or the first player to capture the most value of the 5 captured player wins.

Wrap up - This lesson is great for those students who want to try out their own ideas. Discuss what went well, what was difficult and what they would change in this game.

Lesson Notes

Lesson 14 - Create your Own Mini Game

Intention: This game allows students to create their own game and can take several sessions to complete. For more guided direction you can give them these following steps:

1. Decide on pieces to use
2. Decide how to "win"
3. Practice your game
4. Make revisions to your rules as needed
5. Name your Game
6. Write a final copy of your directions so others can play.

Wrap up: Choose various partners to teach their game to the whole class.

Lesson Notes

The Full Game

Hooray! It's time for a full game and really just the beginning of a lifetime of mastering this wonderful game. Good luck, keep playing and have students keep verbalizing their strategies, writing or doing "Chess Math" at the conclusion of each session. Continue with journaling after games and encourage students to record what strategies they used and if they were successful.

As students gain competency in the basic moves introduce and model the moves in the next section, then move into the Mini Power Games.

Intermediate Chess Moves & Information

Castling – The King moves 2 squares toward the Rook. The Rook jumps over the King to the next square. You can't make this move if the King or Rook has been moved. You cannot castle into or through check.

Pawn Promotion- When a Pawn reaches the other side of the board it is replaced on that same square by a Queen, Rook, Bishop, or Knight. You can have more than one Queen of each color on the board during a game. Often if another piece is not available, a captured rook may be turned upside down to stand for another queen.

En Passant - If you have a Pawn on the 5th rank (row) and your opponent moves a Pawn 2 squares to end by sideways to yours, on your next move you can capture the pawn as if it just moved one square. This is difficult for many students to see so a good strategy is to set up a board and model the moves with just a few pawns.

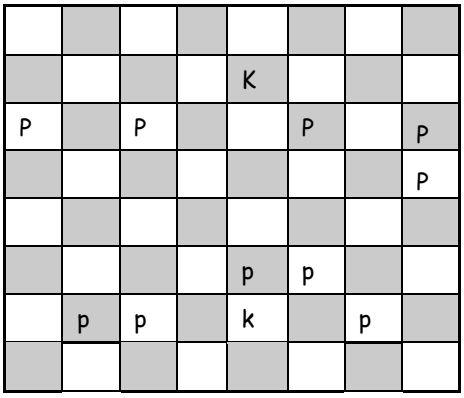
Chess Notation - This is a system for naming the squares and recording moves of a game. The columns (files) are lettered a-h, while the rows (ranks) are numbered 1-8.

8	a8	b8	c8	d8	e8	f8	g8	h8
7	a7	b7	c7	d7	e7	f7	g7	h7
6	a6	b6	c6	d6	e6	f6	g6	h6
5	a5	b5	c5	d5	e5	f5	g5	h5
4	a4	b4	c4	d4	e4	f4	g4	h4
3	a3	b3	c3	d3	e3	f3	g3	h3
2	a2	b2	c2	d2	e2	f2	g2	h2
1	a1	b1	c1	d1	e1	f1	g1	h1
	a	b	c	d	e	f	g	h

White is set up on rows 1 and 2 while Black is on rows 7 and 8. When noting a move you write the capital letter of the piece (none for pawns and N for knight) and the square of arrival. For example Nf3 means the Knight moved to square f3. When teaching this to a class usually 4th grade is appropriate. Younger children can also grasp the concept if worked with in small groups or 1-1 lessons.

- .x is used to show capture
- o-o shows castling to the King side
- o-o-o shows castling to the Queen side
- ? is a bad move
- ?? is a terrible move
- ! is a good move

Isolated and double pawns - As a single unit, the Pawn is the weakest chess piece. But in concert with other Pawns, they can become a powerful winning force. The following board shows good and bad Pawn position. The black Pawns (capital) are weak since they are doubled and isolated. The white (lower case) Pawns are stronger.



Notes:

Strategic Tips:

- If you have control of the center of the board then your opponent will have to move along the sides of the board. This will not only cost your opponent extra moves but it will also result in your enemy's pieces getting in the way of each other.

- After your opponent makes a move stop and look at what he is threatening.

- When your opponent is attacking one of your pieces, always ask yourself:
  Should I Take it? Block it?, or Run away?

- If the opponent's piece is not protected then **Take it**... *Make them prove that they didn't make a mistake.*

- You might also **Block** the attacking piece. i.e. Put one of your pieces in front of the piece you want to protect.

- If you are really scared of the attacker then... when all else fails...**Run away! (**Move your piece to a safer square)
  Remember...Take it!, Block it!, or Run away!

- At the end of the game your King is best in the center of the board.

4 Principles to remember:

1. Push a pawn to the center
2. Bring your pieces off of the back row towards the center.
3. Don't touch a piece a second time during your opening moves.
4. Castle for safety as soon as possible.

Mini Power Games

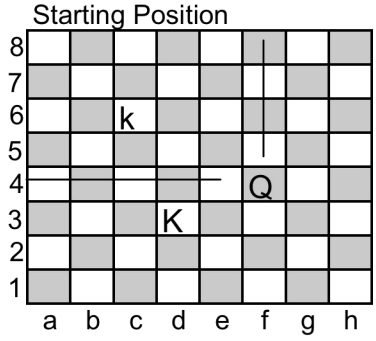
These games are developed for students to duplicate positions on an actual chessboard and are recommended for 4th grade and above or students who want to do additional practice individually. They are appropriate to copy and send home! Standard algebraic notation is used, therefore the Knight is referred to as "N" instead of Kn as in the earlier mini-games, and the number refers to the move.

Power Game 1 -Queen Game & "Corrals"

This is an example of the "Kissing Checkmate". Place the two Kings and Black Queen on the chess board as illustrated. Each diagram exemplifies the next chess move in the Queen Game. In this game use strips of paper placed on the lines (_____) to show the fences that corral in the King. This is an excellent method for students to actually see the territory under the Queen's control.

White's Move	Black's Move
	1 Qf5
2 Kc7	3 Qe6
4 Kd6	5 Qf7
6 Kc8	7 Kd4
8 Kd8	9 Kd5
10 Kc8	11 Kd6
12 Kb9	13 Kc6
14 Ka8	15 Qb7 Checkmate!

Starting Position



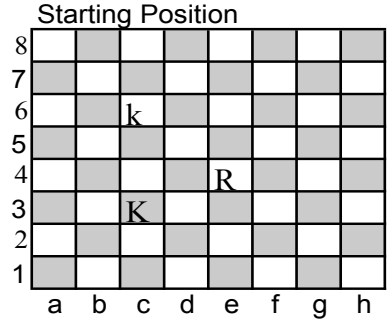
View the moves on pages 40-41 if you need help.

Power Game 2 - Rook Game & "Corrals"

Duplicate the example Rook Game on an actual chessboard. Use pieces of paper for the fences of a corral as you go through all the moves of the Rook Game.

White's Move	Black's Move
	1 e5
2 d6	3 d4
4 d7	5 Kd5
6 c7	7 Re6
8 d7	9 Ke5
10 c7	11 Rd6
12 b7	13 K d5
14 c7	15 Kc5
16 b8	17 d7
18 a8	19 c6
20 b8	21 d8 Checkmate

Starting Position



View the moves on pages 42-43 if you need help.

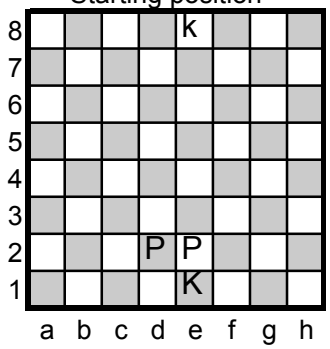
Notes:

Power Game 3 - The Two Pawn Game

This game gives practice in "Queening" a Pawn. Once that is done then you may finish with the Queen Game. The White King tries to capture the Pawns in order to achieve a draw. A key concept in this game is to move as a solid unit of three.

White's Move	Black's Move
	1 Pd4
2 Ke7	3 Pe4
4 Ke6	5 Ke2
6 Kd6	7 Kf3
8 Ke6	9 Kg4
10 Kd6	11 Kf5
12 Ke7	13 Pe5
14 Kd7	15 Pd5
16 Ke7	17 Pe6
18 Kd6	19 Kf6
20 KxP	21 Pe7
22 Kd6	23 Pe8=Queen

Starting position



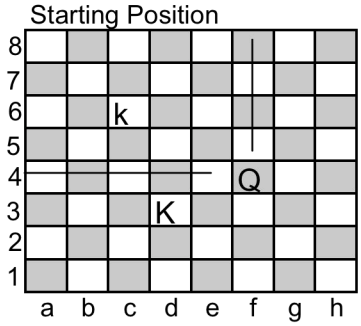
View the moves on pages 44-45 if you need help.

Notes:

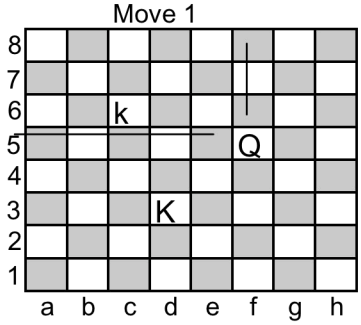
Power Game Moves

Power Game 1 - Queen Game

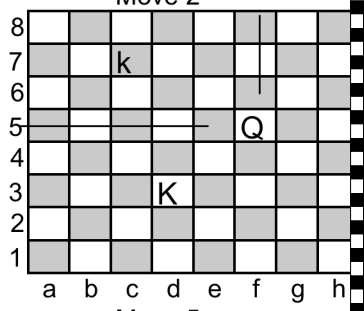
Starting Position



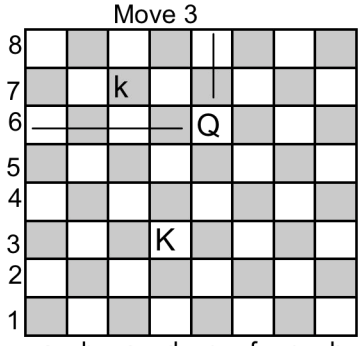
Move 1



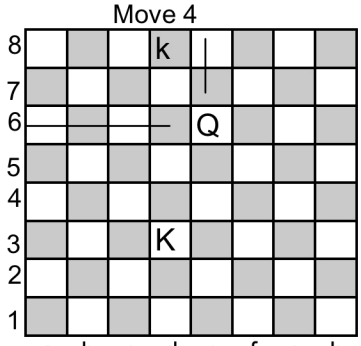
Move 2



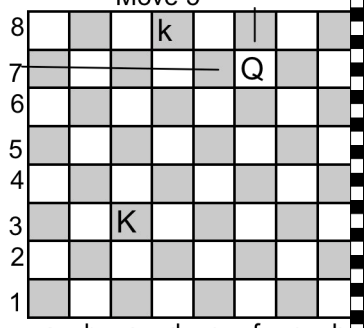
Move 3



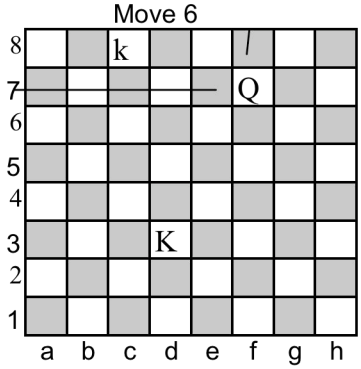
Move 4



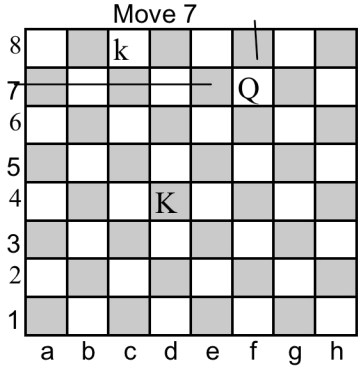
Move 5



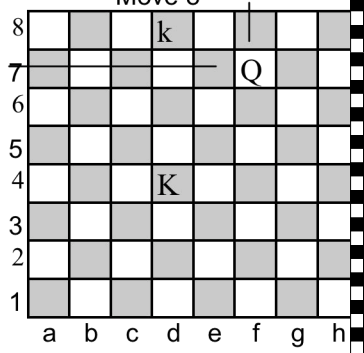
Move 6



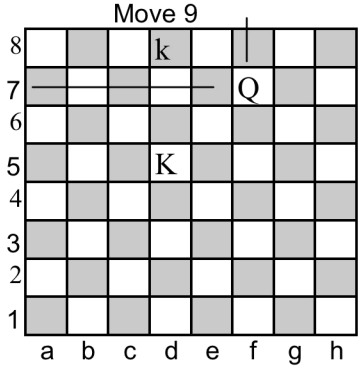
Move 7



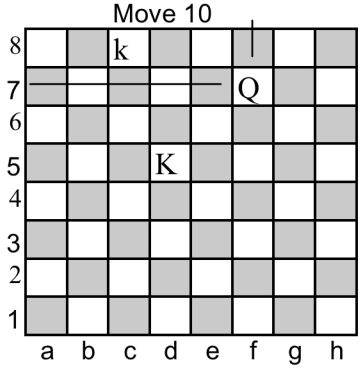
Move 8



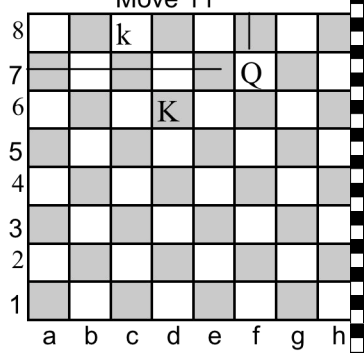
Move 9



Move 10

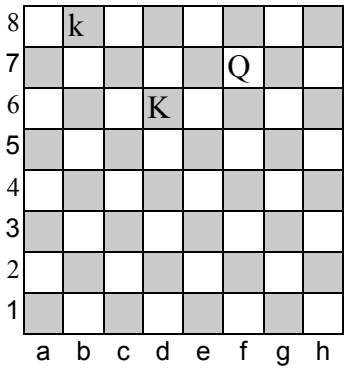


Move 11

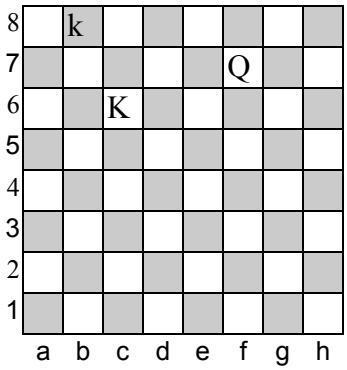


Queen Game Continued

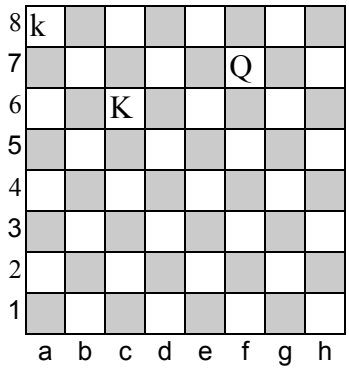
Move 12



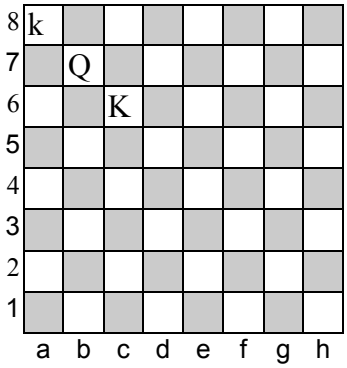
Move 13



Move 14

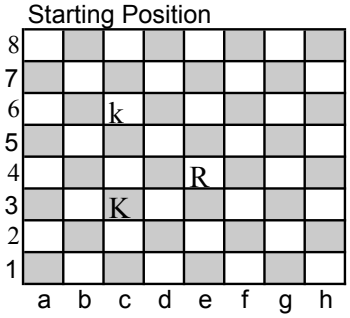


Move 15

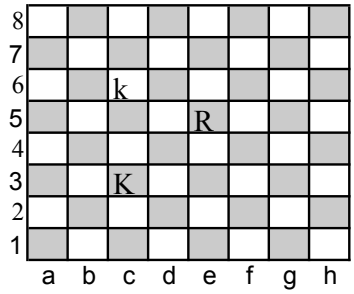


Power Game 2 - Rook Game

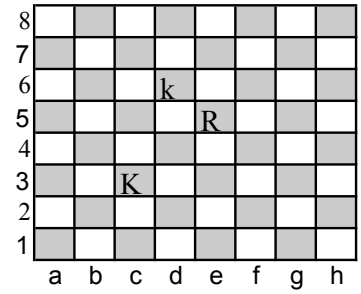
Starting Position



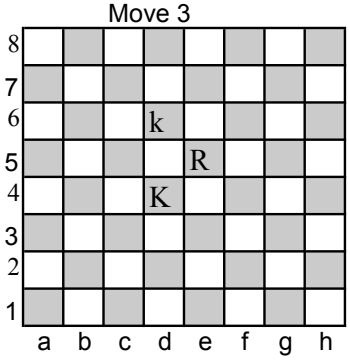
Move 1



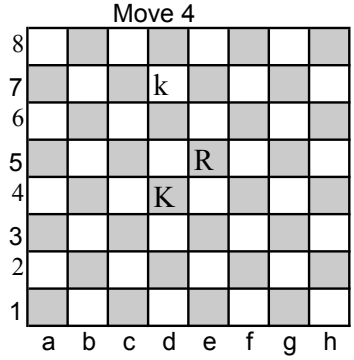
Move 2



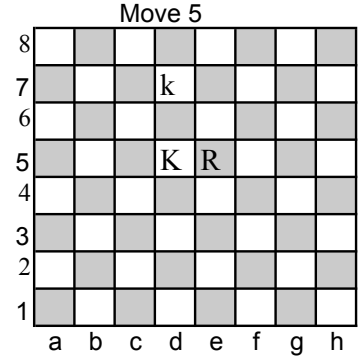
Move 3



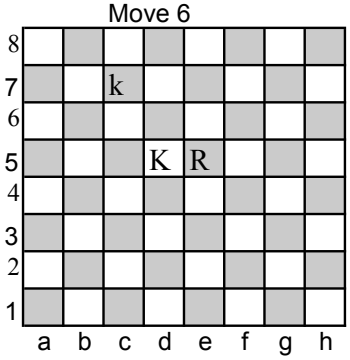
Move 4



Move 5



Move 6



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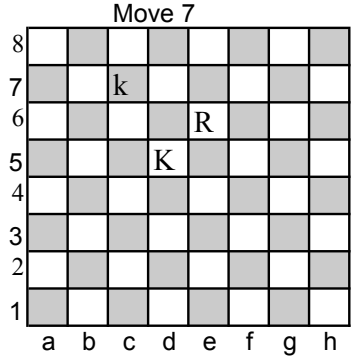
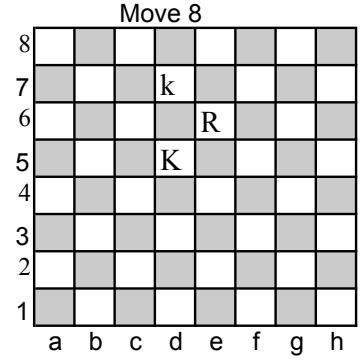


Move 8



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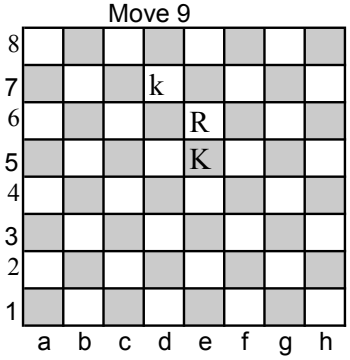

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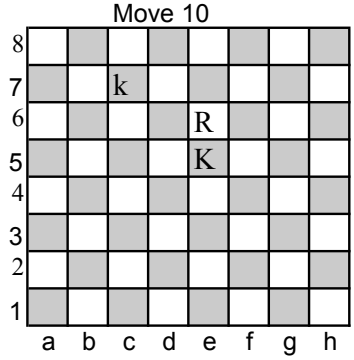
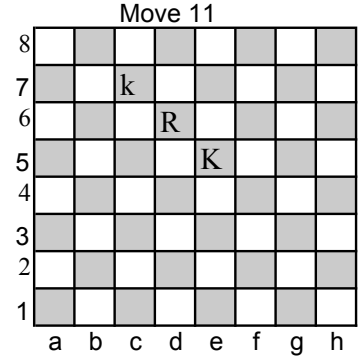
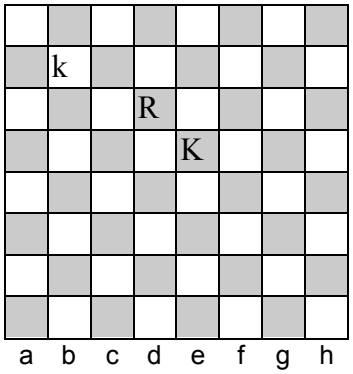


Move 11

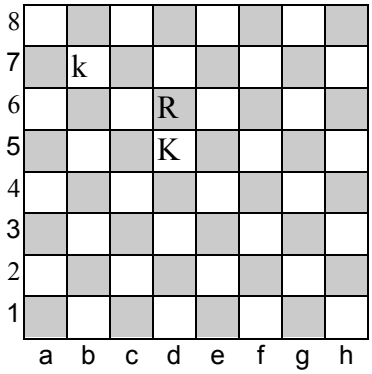


Power Game 2 continued

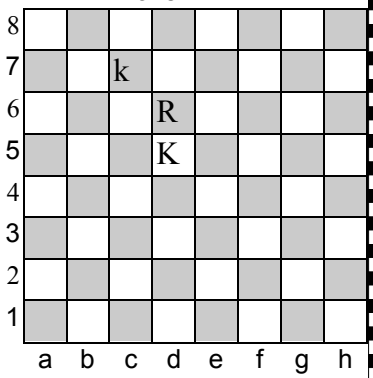
Move 12



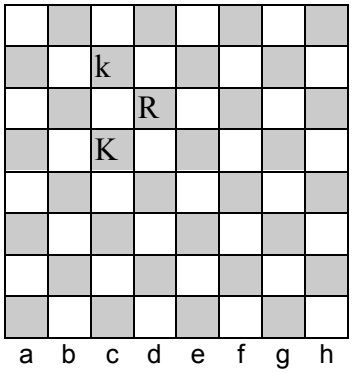
Move 13



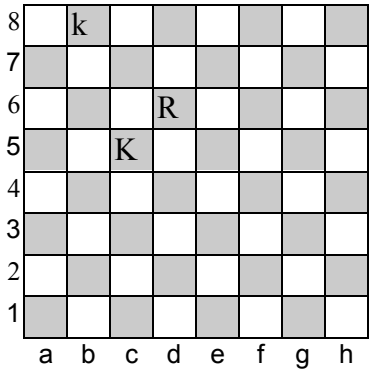
Move 14



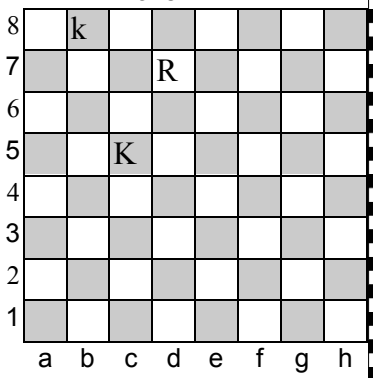
Move 15



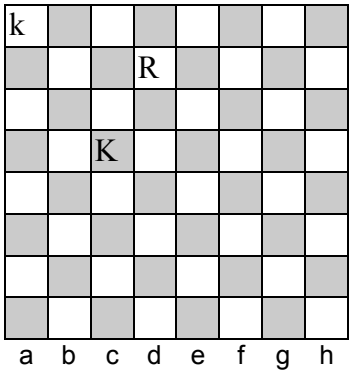
Move 16



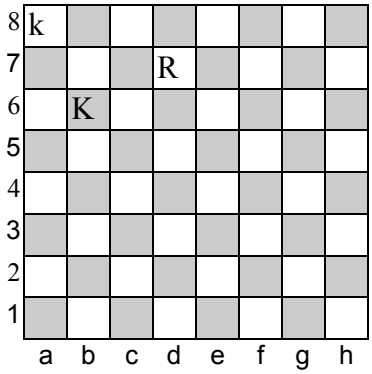
Move 17



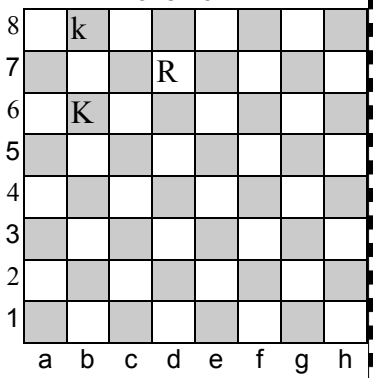
Move 18



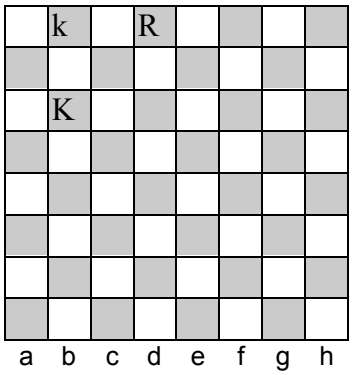
Move 19



Move 20

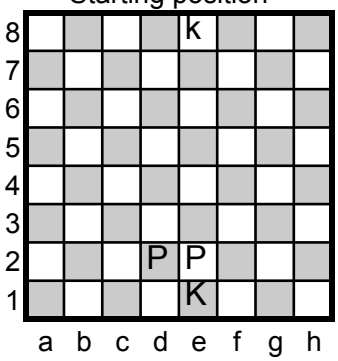


Move 21

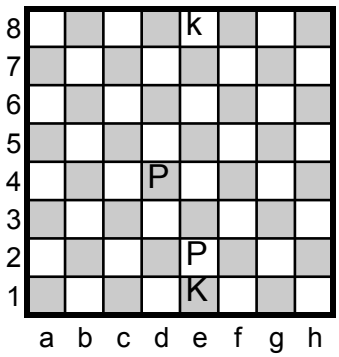


Power Game 3 – The Two Pawn Game

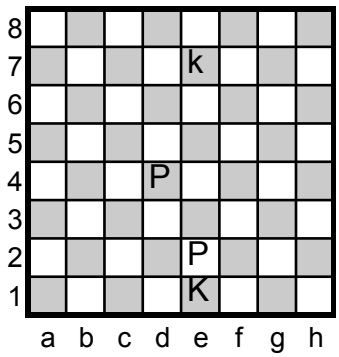
Starting position



d4



e7



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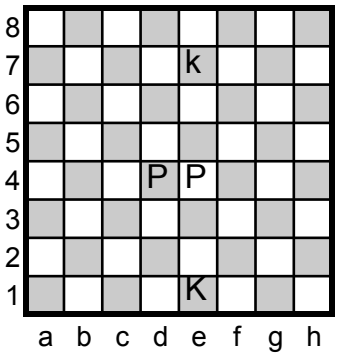

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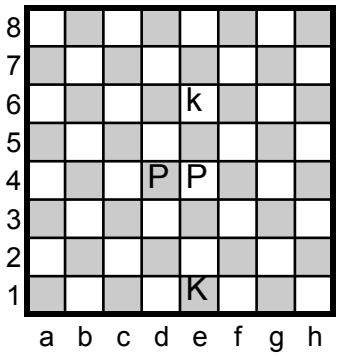

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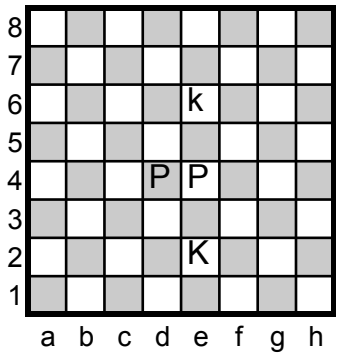

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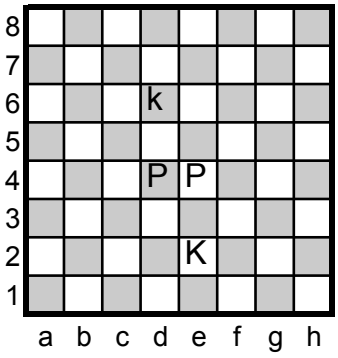
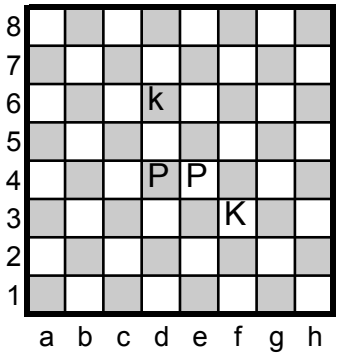


f3



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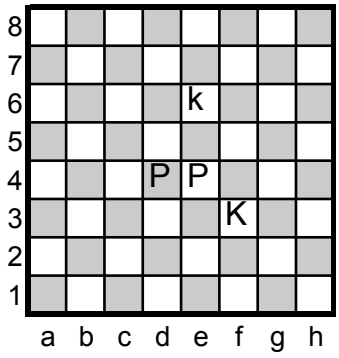
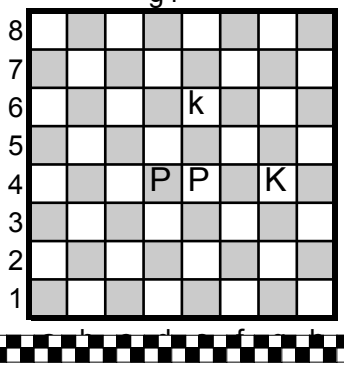


g4



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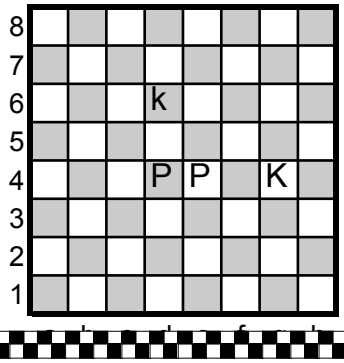

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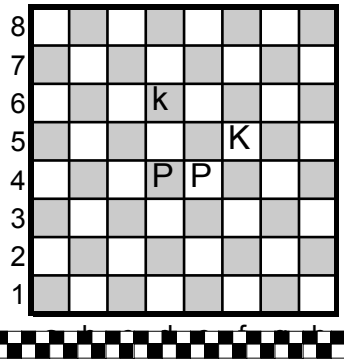

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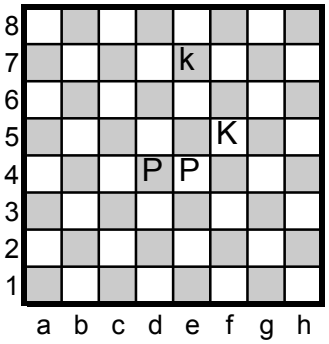

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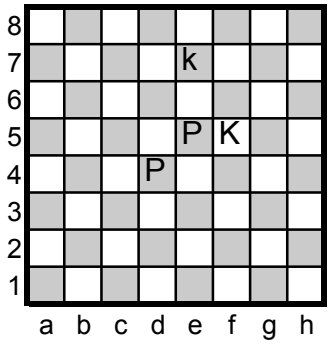

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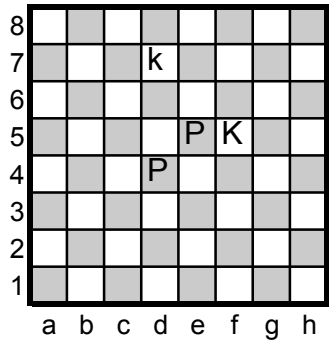

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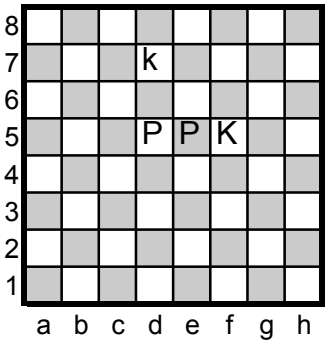

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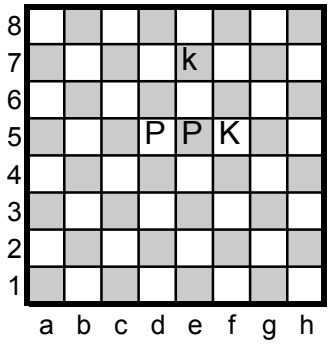

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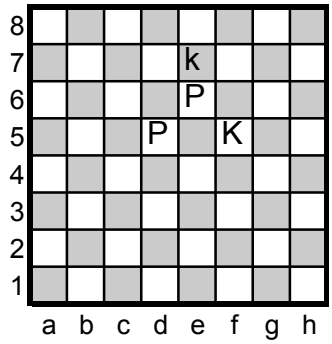

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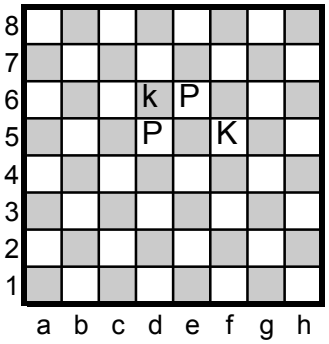

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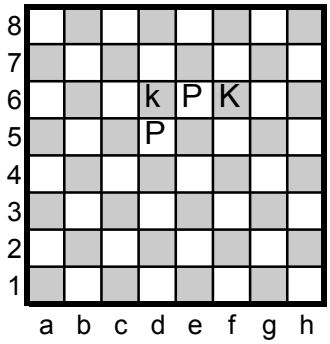
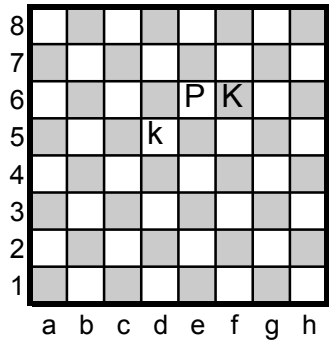


KxP



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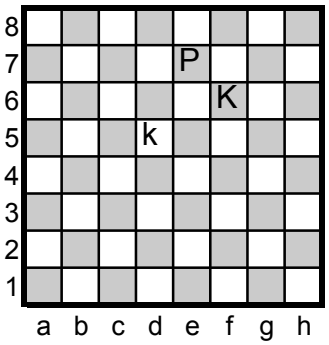

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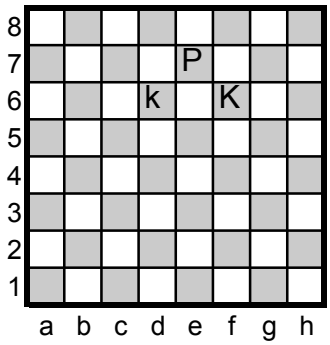
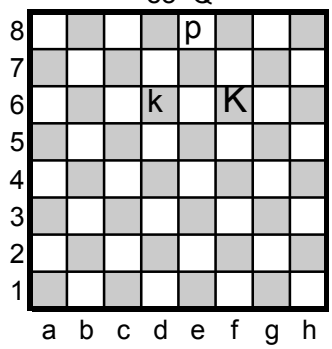
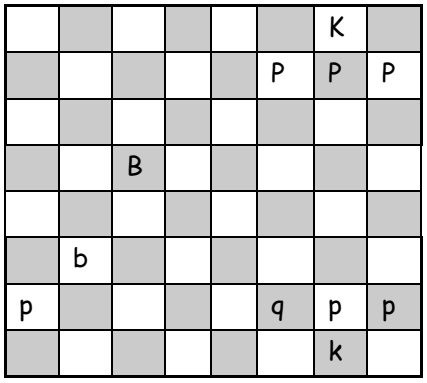


e8=Q



Powerful Pins

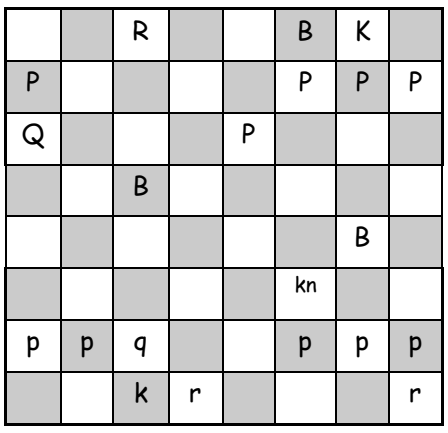


A pin is when one chess piece moves, it exposes another chess piece to attack. There are two types:

1) Absolute Pin – In this pin, the pinned chess piece cannot move because it would expose the King to a Check.

In the example above the Black Bishop pins the White (red) Queen in an Absolute Pin. This trade, Bishop for Queen gives Black a sure win. Set it up and try!

2) Non-Absolute Pin – In this pin, the chess piece can move, but may expose a greater value Chess piece.



The Black Bishop pins the White (lower case) Knight in a Non-Absolute in. If the White Knight moves, the Black Bishop can capture the Black Rook. This trade, Bishop for Rook, gives Black a winning advantage, but not a sure win.

A general rule when pinned is to get rid of the pin by either attacking the pinning piece or by moving the pinned piece.

Set up the board with the Non-Absolute Pin and try these moves:

1) Pawn to h2 OR
2) R to e1

Either of these moves gets rid of the pin.

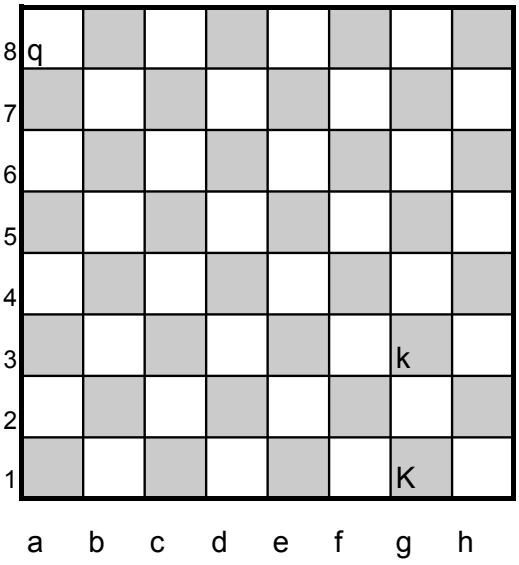
One fun thing to do is to keep a running tally of how many "Pins" you can have in a game. Keeping track on a chart can help you anticipate moves and remind you to look at all possibilities!

Name	Absolute	Non-Absolute

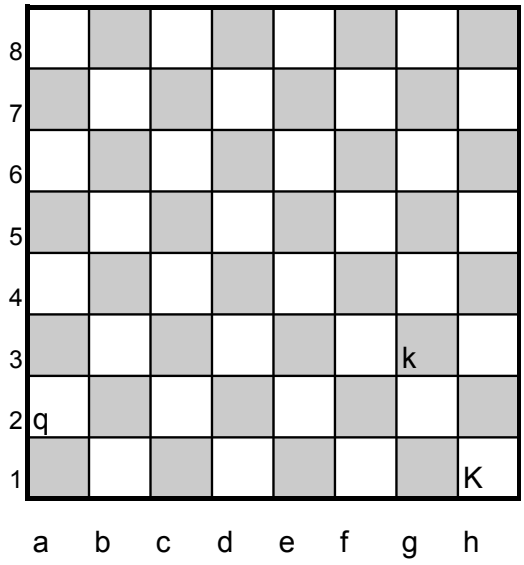
Three Piece Problems

Work together with your opponent to try to solve these 4 problems that involve only three pieces on the board. Talk about different moves you could make. Solutions are on the next page. White moves first.

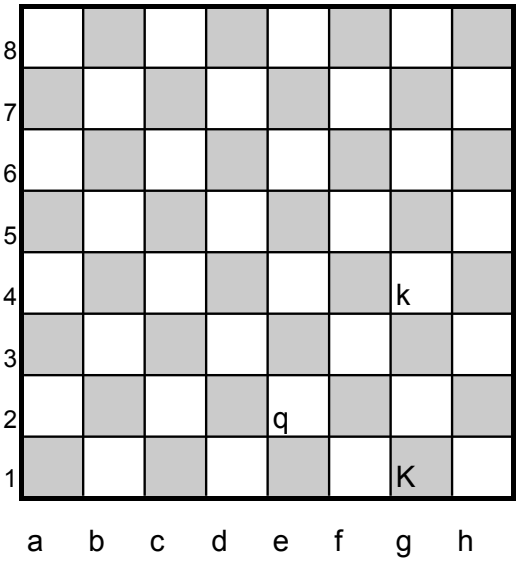
A **Checkmate in 1 move.**



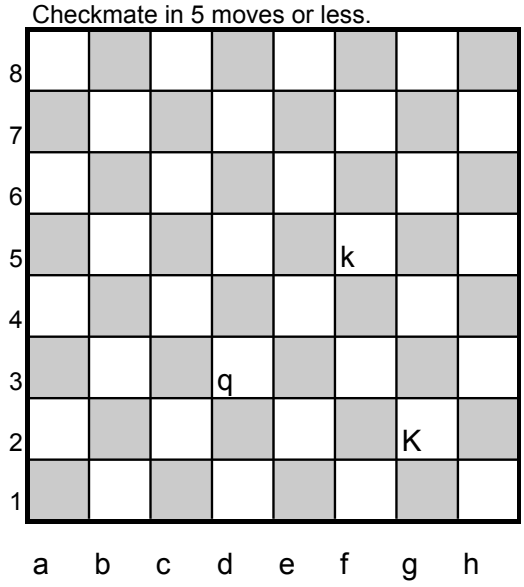
B Checkmate in 1 move.



C Checkmate in 2 moves.



D Checkmate in 5 moves or less.



Three Piece Problems – Solutions

Problem A

Qg2 OR Qa1

Problem B

Qa1 OR Qb1 OR Qg2 OR Qh2

Problem C

White	Black
Kg3	Kh1
Qg2 Mate	

Problem D

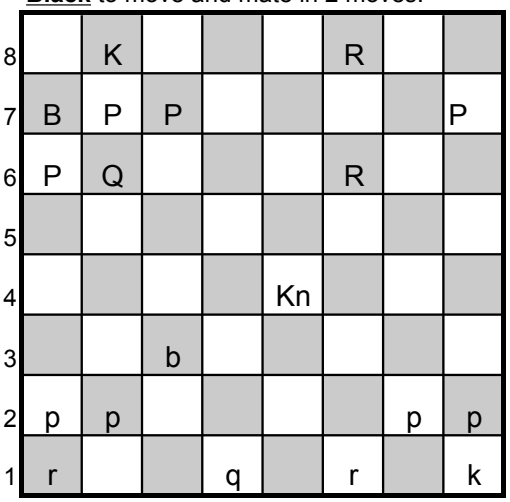
White	Black
Kf4	Kf2
Qd2	Kf1
Kg3	Kg1
Qe1 Mate	

Assessment Chess Puzzles

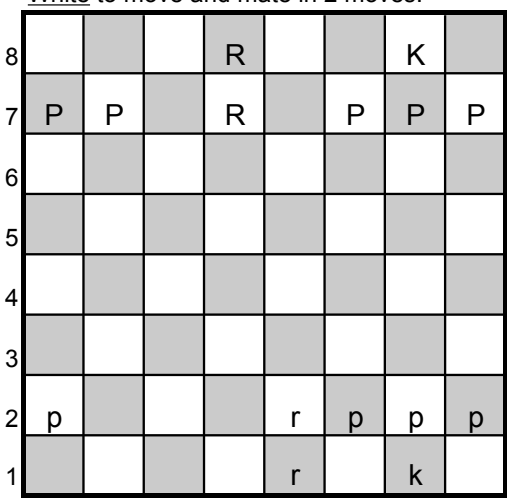
Set these games up and try to solve. RECORD YOUR MOVES. **Lower case are white.**

Underline color moves first. Answers follow.

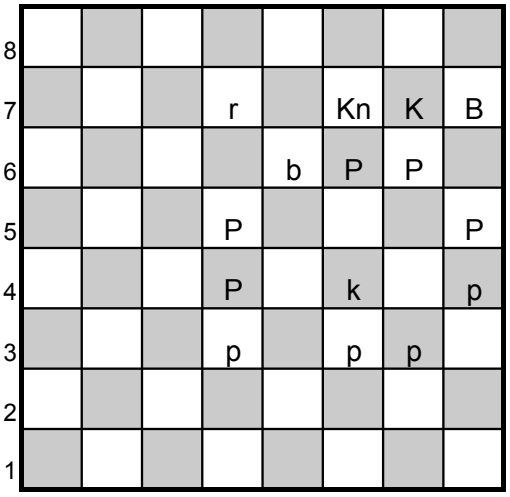
A **Black** to move and mate in 2 moves.



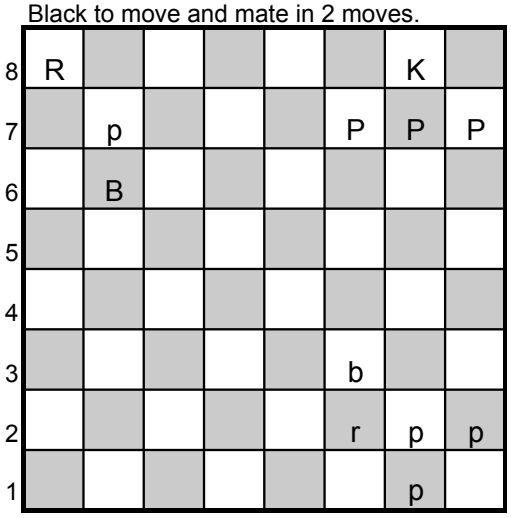
B White to move and mate in 2 moves.



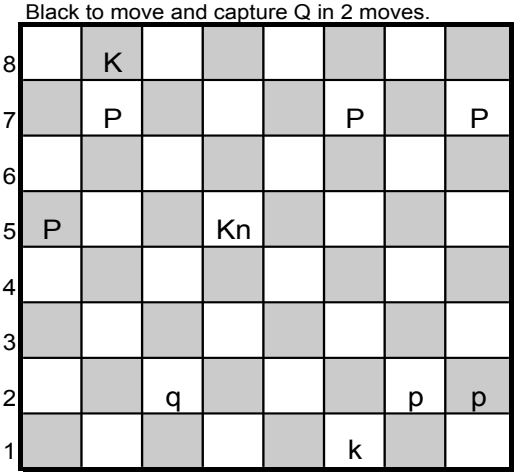
C Black to move and mate in 2 moves.



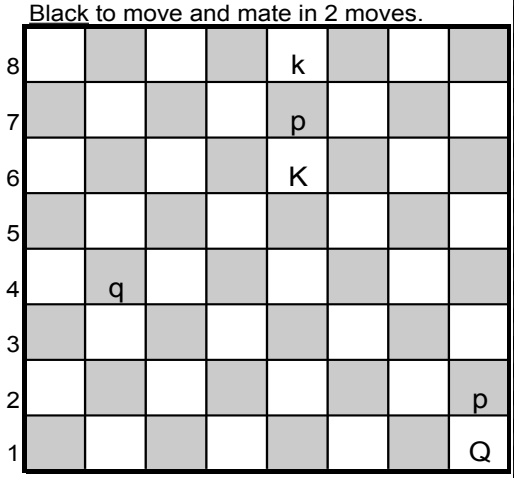
D Black to move and mate in 2 moves.



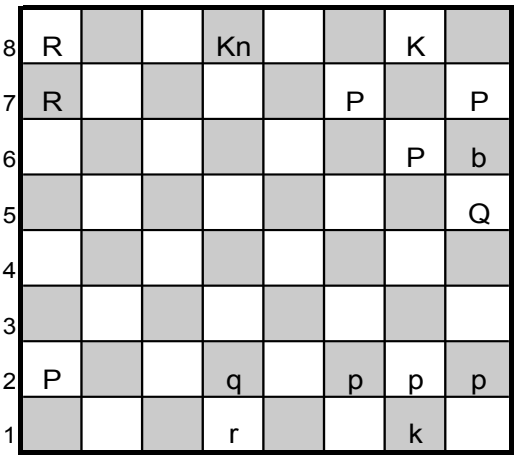
E Black to move and capture Q in 2 moves.



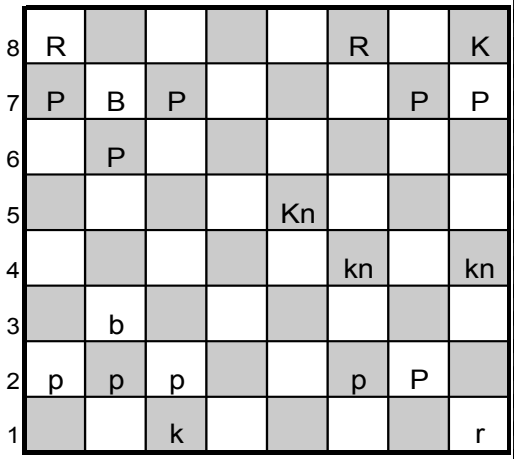
F Black to move and mate in 2 moves.



G White to move and mate in 2 moves.



H White to move and mate in 2 moves.



Answers to Assessment Puzzles

Puzzle A

White	Black
---	Qg1
RxQ	Nf2 Mate

Puzzle B

White	Black
Re8	RxR
RxR Mate	

Puzzle C

White	Black
---	Pg5
PxP	PxP Mate

Puzzle D

White	Black
---	Ra1
Bd1	RxB Mate

Puzzle E

White	Black
--	Ne3
e2	NxQ

Puzzle F

White	Black
---	Qa8
Qb8	QxQ Mate

Puzzle G

White	Black
QxN	RxQ
RxR Mate	

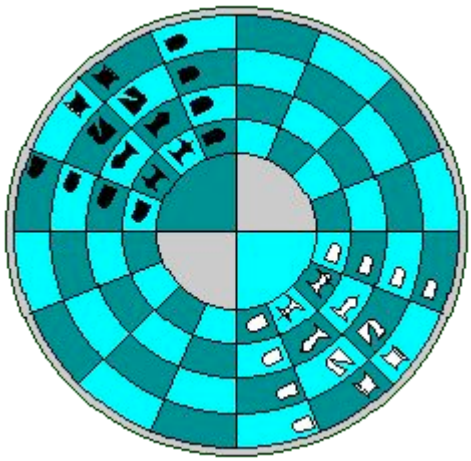
Puzzle H

White	Black
Ng6	NxN
NxN Mate	

Resources

Did You Know?

- Chess originated in India, where it evolved from a game called **Shaturanga**. The game was invented between four or five thousand years ago, by the wife of King Ravana of Ceylon, when the capital was besieged by Rama.



- Byzantine Chess, or Circular Chess, was an odd variant played on a circular board having 64 squares and 4 citadels.

- In politics as in chess, the center is generally the strongest position. Politicians who stray too far from the center tend to lose elections.

- The fork move in chess is similar to the martial art called Tai Chi Chuan.

- The Doolittle attack on Japan during World War II used the chess move of a "pin" to successfully stop the Japanese.

- Chess is a recognized sport of the International Olympic Committee.

- The computer program Deep Blue was the first machine player to win a reigning World Chess Champion when it defeated Garry Kasparov in 1997.

- Approximately 600 million people worldwide know how to play chess.

- The number of possible chess variants is virtually unlimited. Some estimates are well over 2000.

Game Variations

Pocket Knight – Start the game with your Queen side Knight in you pocket and once during the game a player may take and place it anywhere on the board in place of a move.

Double Move – each player moves two times in a row, except you cannot give check with the 1st move and if you are in check you must deal with it in the first of your moves.

Rooks 8 – This is a puzzle where you must position 8 rooks on the board so that no one can be captured.

Body Chess - This is using large squares and people as chess pieces. For students a painted chessboard on an outside surface can yield a lot of fun. Names of the pieces can be placed on tag board or painted on pillowcases cut to slip on students. One student can be designated the "Chess Master" for each color to control the moves, or players can move to match a famous match in history.

Dunsany's Chess (or Horde chess) - One side has standard chess pieces, and the other side has 32 pawns

Peasant's Revolt: By R.L. Frey (1947). White has a king and eight pawns (the peasants) against king, pawn and four knights by Black (the nobles).

Weak!: White has usual pieces, Black has one king, seven knights and sixteen pawns. This game was played at Columbia University chess club in the 1960s.

Checkless Chess: Players are forbidden from giving check except to checkmate.

Stationary King: Both players' kings are not allowed to move.

Three-check Chess: A player wins if he checks the opponent three times.

Curriculum Connections

Language Arts Ideas for the Classroom

Throughout the year choose from the following quotes and sayings and write on the board for students to discuss or use for journaling prompts. You may also have them research the person that the statement is credited.

Uneasy lays the head that wears the crown. – Shakespeare

I see one more ahead – the best one. – Jose Capablanca

Never move a pawn and you will never lose a game. – Tarrasch

The player who wins is the one who makes the mistake before the last. – Tartakover

Some part of a mistake is always correct. -- TARTAKOVER

You cannot play at chess if you are kind-hearted. -- FRENCH PROVERB

An isolated Pawn spreads gloom all over the chessboard. -- TARTAKOVER

Excellence at chess is one mark of a scheming mind"-- A. Conan Doyle (in the mouth of Sherlock Holmes)

Life is a kind of Chess, with struggle, competition, good and ill events - Benjamin Franklin

Life is like a game of Chess, changing with each move. - Chinese proverb

Some part of a mistake is always correct – Tartakover

A player surprised is half beaten – Proverb

No one ever won a game by resigning. – Unknown

A strong memory, concentration, imagination, and a strong will are required to become a great Chess player. - Bobby Fischer

Chess, like love, like music, has the power to make people happy. – Tarrasch

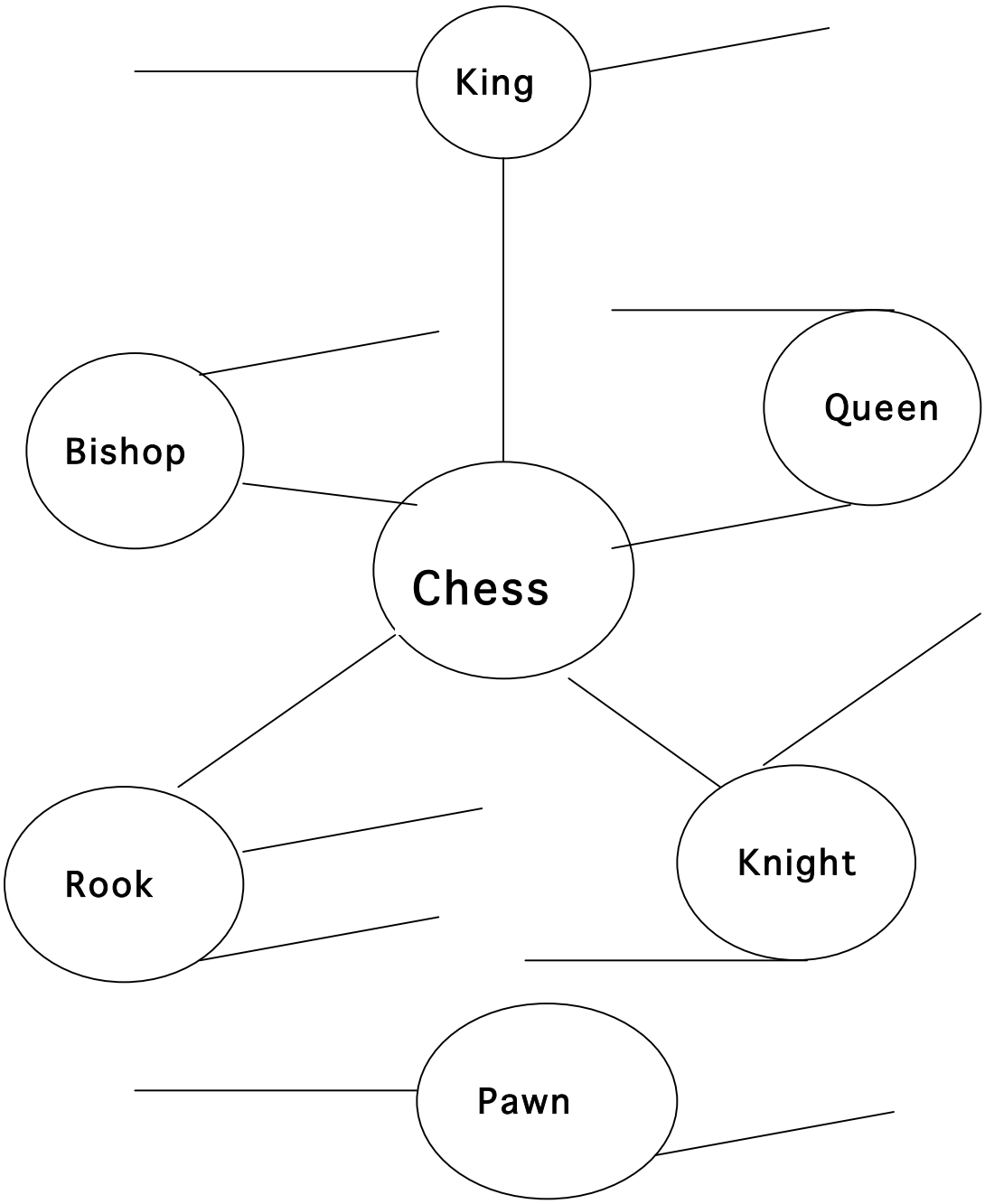
Life is a kind of Chess, with struggle, competition, good and ill events. - Benjamin Franklin

When you see a good move, look for a better one. – Chess adage

Sassa was a legendary philosopher who was supposed to have invented chess to break a King's addiction. There are several wonderful children's stories similar to *One Grain of Rice* that can be read and compared.

Social Studies Ideas for the Classroom

- Have students identify countries with top competition sites are homes of the world's greatest players.
- Have students research the top players in the world and create graphs showing the countries represented.
- Have students research the lives of present or past famous players such as Bobby Fischer, Mikhail Botvinnik, Jose Capablanca, Alexander Alekhine, Anatoly Karpov, Gary Kasparov, Vishy Anand, or other grand masters.
- Have students research the history of chess and variations such as Chattering, Blindfold chess and Blitz chess


King
Bishop
Queen
Chess
Rook
Knight
Pawn

Classifying Chess Terms

Start with the following terms and sort them into three groups: **Actions**, **Pieces,** and **Moves**. Then find other words go with chess that you can place into the same categories. Can you find another way to sort the same words?

strategy
capture
king
vertical
pawn
castle
bishop
queen
horizontal
anticipate
rook
diagonal
knight
exchange
pin
stalemate
check

Chess Math

Queen = _____ Rook = _____ Bishop = _____

Knight = _____ Pawn = _____

Kn + B + P = _____ P + P + Q = _____

R + R = _____ B + B + Kn + Kn = _____

Which pieces would fit this equation?

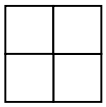
$.90 + $.50 + $.10 = $1.50

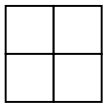
_____ + _____ + _____ __

Give me a combination of pieces that would equal $.90.

_____

How Many Squares Do you See?





At first glance it appears easy to find the number of squares on a chessboard. Most young children just start counting. Use this activity to enhance problem solving, organizing data, and recognizing patterns.

Engage: Give each pair of students a chess board and ask them: How many squares are there on a chessboard?

Explore: Let each pair figure out their answer and then write their findings on the board and the strategies they used.

Explain: Look at the variety of answers and lead the group in a discussion that eventually leads to the sizes of the squares.

Teacher Note: There are many different-sized squares on the chessboard. The complete list of answers is shown below:

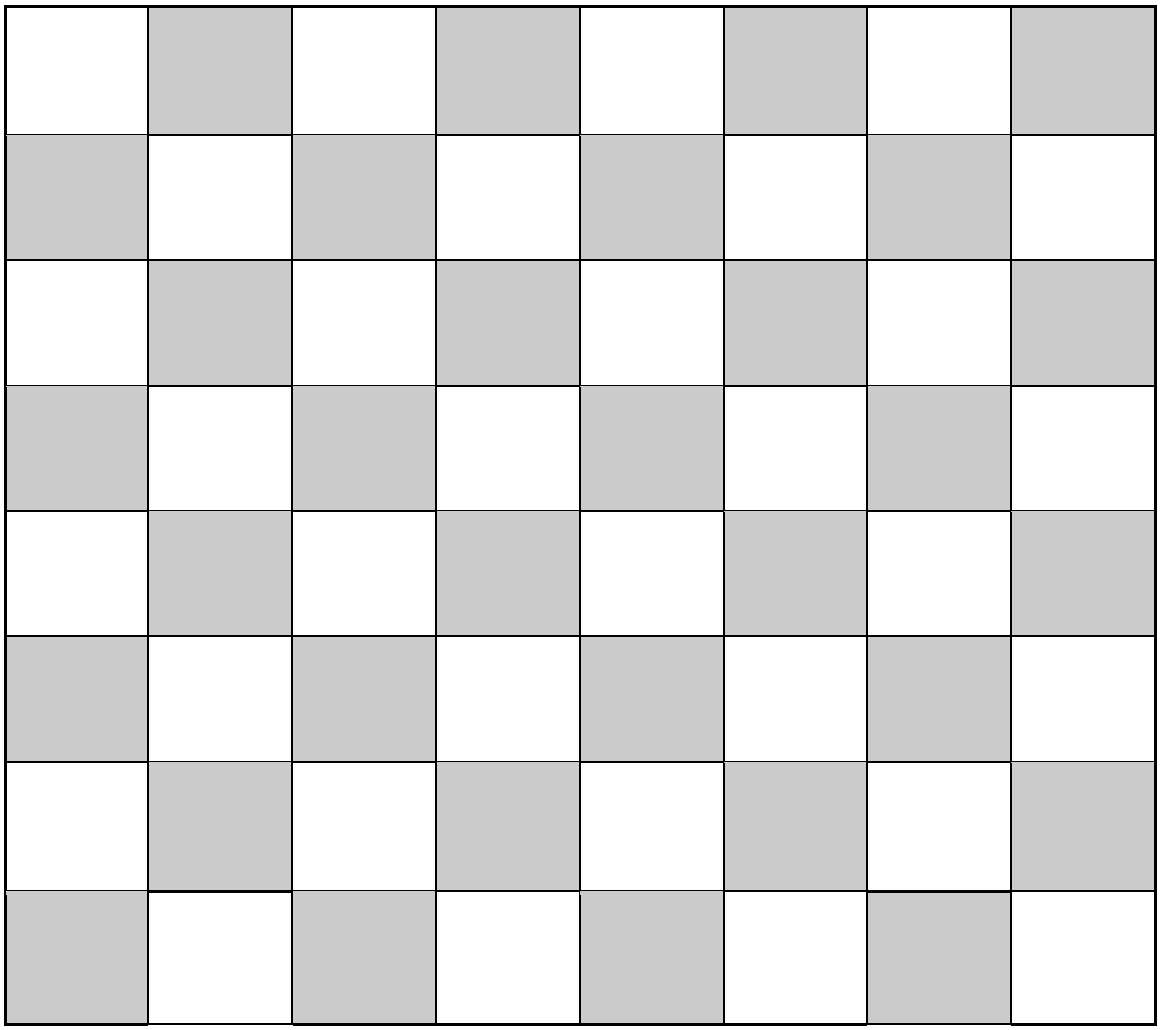
1, 8x8 square
4, 7x7 squares
9, 6x6 squares
16, 5x5 squares
25, 4x4 squares
36, 3x3 squares
49, 2x2 squares
64, 1x1 squares

Therefore, there are actually 64 + 49 + 36 + 25 + 16 + 9 + 4 + 1 = 204 total squares on a chessboard

Elaborate: Once they realize there could be different sizes let them work together again to revise their findings. It is best if students create a method to discover this rather than handing them a worksheet or table. If the children manage to find all of them, ask them if they can see a pattern in the results (i.e. the square numbers in the table)

Evaluate: Have each pair of students work on a poster to explain the strategies they used. Did they add correctly? Were they able to describe some patterns? Go to rubistar.com and create a custom rubric appropriate for the age you teach.

Teaching Notes:



Sample letter to Parents

Dear Parents,

Our goal this year is to teach your child to play the game of chess through "mini-games" in the classroom. Then at home she/he can teach what they learned to other family members and practice their moves.

Why are we doing this?

Chess has long been considered a way for children to increase their mental prowess, concentration, memory and analytical skills. All of these traits are needed for academic excellence. Games and interactive strategies appeal directly to the experiential mind and provide a powerful balanced approach to whole-brain learning. They develop practical and creative intelligence and enhance school success.

Basically, we also want to give families something concrete to use to help their child at home and to get kids away from the TV and interacting with family members.

What can you do?

Purchase an inexpensive chess game. Keep the chess pieces together in a zip-lock bag and put up when not playing.

Once or twice a week take out the chess game and play a mini-game with your child.

As you play help emphasize that while it's great to win, it's also important to accept defeat with grace. Help your child realize that they are responsible for their own actions and must accept the consequences. (Play by the rules and don't cry if you lose a piece!)

Above all enjoy this time, in no time at all your children will be grown and hopefully will enjoy chess throughout their life.

Remember: Every great Chess player was once a beginner!

Supporting the Common Core State Standards in Math

The Mini-Games and activities described in this book correlate to many of the Common Core State Standards in Mathematics depending on grade level. The key standards are listed below:

Standards for Mathematical Practices (K-12)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Standards for Mathematical Content

Kindergarten

Measurement and Data K.MD

Describe and compare measurable attributes.

1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
2. Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category.

3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

Geometry K.G

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.
2. Correctly name shapes regardless of their orientations or overall size.

First Grade

Operations and Algebraic Thinking 1.OA

Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Add and subtract within 20.

5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

Number and Operations in Base Ten 1.NBT

5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

Second Grade

Operations and Algebraic Thinking 2.OA

Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Geometry 2.G

Reason with shapes and their attributes.

1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.5 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

Third Grade

Operations and Algebraic Thinking 3.OA

Represent and solve problems involving multiplication and division.

1. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*
2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*
3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = □ ÷ 3, 6 × 6 = ?.*

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Number and Operations in Base Ten 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

5. Recognize area as an attribute of plane figures and understand concepts of area measurement.
    a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
    b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

7. Relate area to the operations of multiplication and addition.

a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Number and Operations—Fractions 3.NF

Develop understanding of fractions as numbers.

1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

Fourth Grade

Operations and Algebraic Thinking 4.OA

Use the four operations with whole numbers to solve problems.

1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the

unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
3. Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Number and Operations—Fractions 4.NF

Extend understanding of fraction equivalence and ordering.

1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
    a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
    b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*
    c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

Measurement and Data 4.MD

Geometric measurement: understand concepts of angle and measure angles.

5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
   a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.

Fifth Grade

Operations and Algebraic Thinking 5.OA

Write and interpret numerical expressions.

1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

Number and Operations—Fractions 5.NF

Use equivalent fractions as a strategy to add and subtract fractions.

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*
2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use

benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*

Geometry 5.G

Graph points on the coordinate plane to solve real-world and mathematical problems.

1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to
travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).
2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Sixth Grade

Ratios and Proportional Relationships 6.RP

Understand ratio concepts and use ratio reasoning to solve problems.

1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities

Increase Your Knowledge

There are many wonderful Chess books written and whole libraries dedicated just to this popular game. The most effective way to find those books is to search the internet using a search engine like google.com or a specific book site like amazon.com. Below are four chess sites that will get you started to discover the depth and world popularity of chess. All have links to other sites and resources.

http://nscfchess.org - National Scholastic Chess Foundation
This has great educational research studies and article.

http://chessbase.com - This has up-to-date chess news with an international flavor

http://fide.com– World Chess Federation
This is a site where you can see the top rankings in the world!

http://www.princeton.edu/~jedwards/cif/intro.html This is a quick, free, and easy internet chess site useful for a learning center in a classroom.

Notes:

Glossary

Advantage – having more value of pieces or better board position than your opponent.

Capture - to attack a piece, remove it from the board and your piece in placed in that square.

Castling – If the King and Rook have not been moved, you may move the King two squares toward the Rook, which then jumps over the King into the next square. You cannot castle into or through check.

Draw - Unlike a stalemate, a draw or tie can occur when neither side has sufficient materials to checkmate. A draw can be agreed upon by the players. Also, a repetition of moves can end in a draw.

Doubled pawn – two pawns in adjacent squares in the same column and usually something you want to avoid.

En passant – If your pawn is one your fifth row and your opponent moves a Pawn two spaces to end up alongside it, you can on your next move capture it as if it moved one square.

Exchange – to lose one piece of equal value to one that is captured.

Fork- when a piece is attacking two men at the same time…usually easiest to do with the Knight.

J'adoube – a French saying meaning I adjust, you say before you want to center a piece but not play it.

Major chess pieces – the King, Queen, Rook

Minor pieces - Bishop, Knight and Pawns.

Pin – when a piece cannot move without sacrificing another piece besides the King!

Protection - when one piece is "guarding" another so it can't be captured.

Resign – to give up before you are checkmated.

Sacrifice – the act of giving up one piece in a plan to capture something of more value.

Stalemate – This can happen when the game ends in a tie or if the player has no legal moves but his King is **not** in check. In a classroom situation instruct children if they only have a King left to count their moves and if they can make 10 moves without being placed in checkmate then the game can be called a draw.

Zugzwang – A German word often said when you have to make a move you really don't want to!

Mini-Game Chess Reproducible Student Sheets

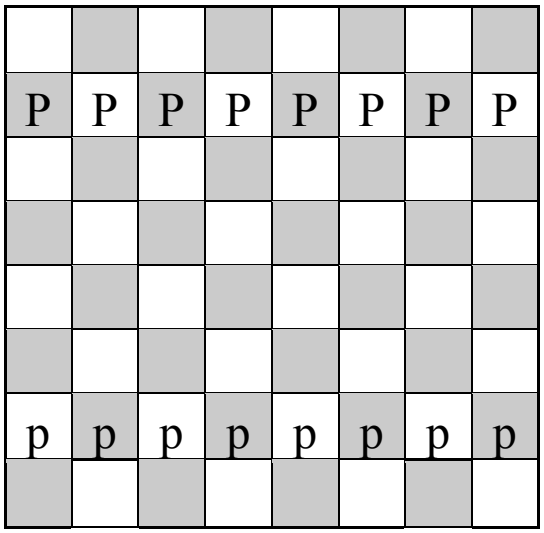
How to use

- Copy the Mini-Games, cut them apart and store in 6x9 envelops for easy access when needed.

- Give one sheet to each pair of students to encourage collaboration.

- If students keep a chess journal you can also copy one for them to paste into their journal for future reference.

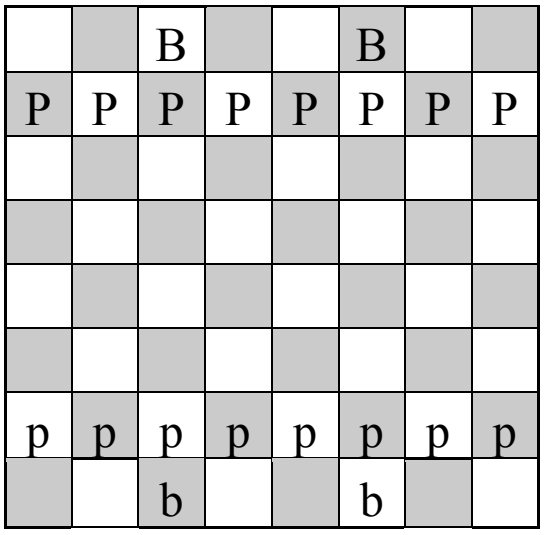
- The sheets can also be placed on a document camera for whole group discussions.



Mini Game # 1
Pawn Parade

Win by getting more pawns to your opponent's back row!

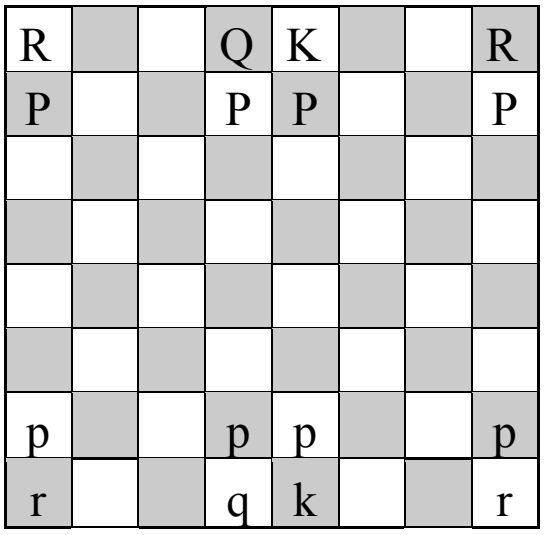
Pawn – moves one square forward, captures 1 square diagonally forward, can move 2 up on the first move.



Mini Game # 2
Bishop's Beware

Be the first to get a Bishop to your opponent's back CORNER to win.

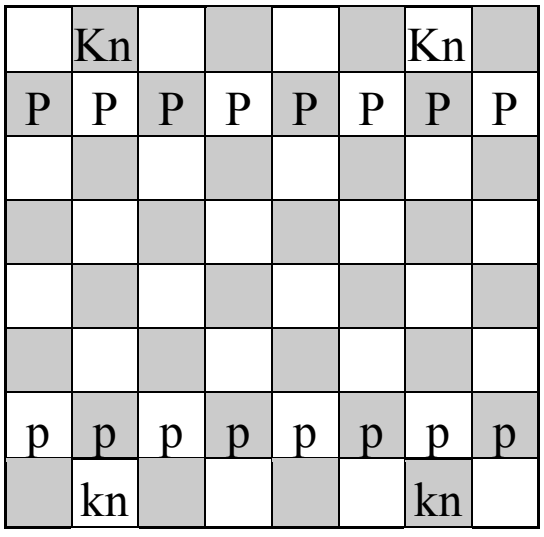
Your Bishop only moves diagonally!



Mini Game # 3
Queen Rook Checkmate

Win if you get a checkmate or tie if you end in a stalemate.

Rook – moves horizontal or vertical
King - one space in any direction..
Queen - any number of spaces in a straight line.



Mini Game # 4
Horse Race

Be the first to get a knight to your opponent's back row to win.

Knight - moves in an "L" - one, two, over and captures only wat they land on.

R	Kn	B			B	Kn	R
P							P
							p
r	kn	b			b	kn	r

Mini Game # 5
Last Man Standing

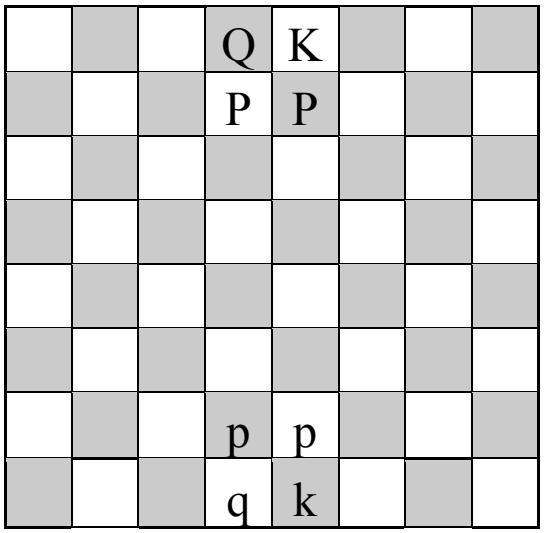
To win this game, move and capture. The last piece left on the board wins the game!

Rook – moves horizontal or vertical
Bishop – moves diagonal
Knight – moves like an "L" one, two, over and captures only what they land on.
Pawn – moves one square forward, captures 1 square diagonal forward, can move 2 up the first move.

R				K			R
P							P
p							p
r				k			r

Mini Game # 6
The King's Nightmare

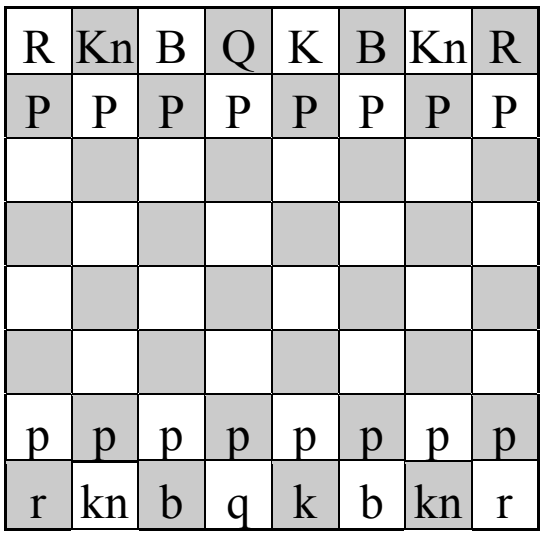
Use your two Rooks to trap the King in a checkmate!
Your Rook moves horizontally or vertically.



Mini Game # 7
Queen's Kiss of Death

To win this game, the Queen must **Check** the King!

Queen – moves in a straight line any direction.
King – moves one square any direction.
Pawn – moves one square forward, captures 1 square diagonal forward, can move 2 up the first move.



Mini Game # 8
Show Me the Money

Decide with your opponent on an amount you want to play for: $1.00? $1.50? $2.00?

Then play until one of you captures that VALUE of pieces and you are the winner!

Queen = $.90 Rooks = $.50 Bishops & Knights = $.30 Pawns = $.10

Mini Game # 9

Half the Battle

The Kind and Queen must cut their budget. Therefore they can only send half the value of their army into battle.

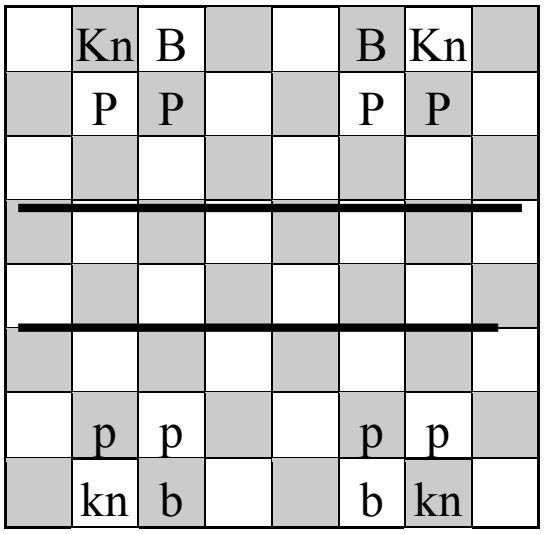
5. Decide what pieces you will use. Be ready to defend your budget.
6. Place the pieces (along with the King and Queen) in their starting positions.
7. Play until you have EITHER a checkmate OR have captured over half the value of your opponent's army.
8. Be ready to defend either orally or by journaling how you won, lost, or had a draw.

Pawns = 10□ each, Bishops and Knights = 30□ each, Rooks = 50□ each, Queen = 90□, King = priceless

R	Kn	B	Q	K	B	Kn	R
r	kn	b	q	k	b	kn	r

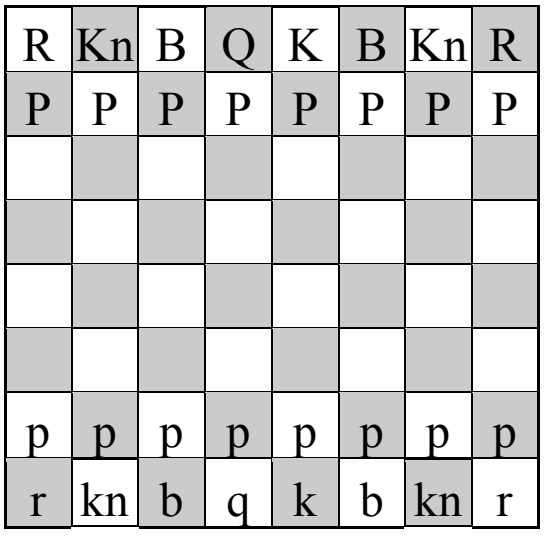
Mini Game # 10
Major Players

Win this game by a checkmate OR reducing your opponent to only their king left on the board. Take turns being white.



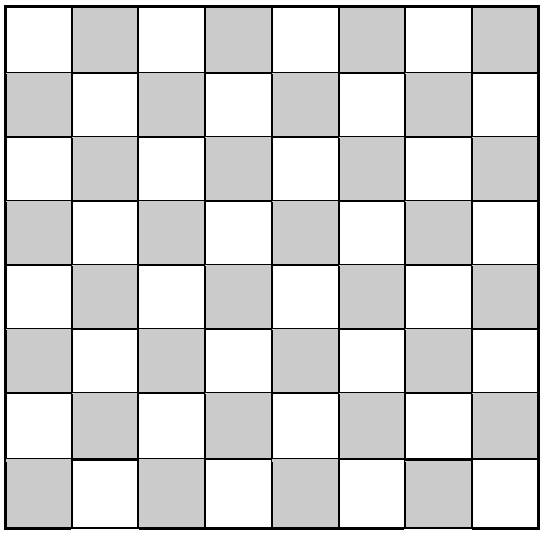
Mini Game # 11
Medieval Minors

Cut two narrow strips of paper to create a fence on the two middle ranks (rows 4 & 5) to create a corral.
The player with the most pieces in the middle corral after 10 moves per player wins a point. Tie games are worth ½ point ½ point. First player to reach 5 points wins.



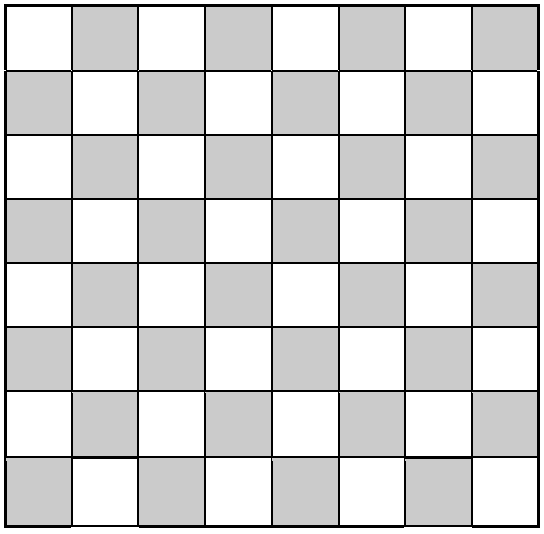
Mini Game # 12
Seconds for Sixes

Set up a full game. If the pieces you have captured have a value that is a multiple of six then you get two turns in a row! (30, 60, 90, etc). The first player with three double turns win.



Mini Game # 13
Build an Army

Each player chooses any 6 pieces and places them in their regular starting position. Win by being the first to capture any 4 pieces.



Mini Game # 14
Create Your Own Game

Pieces to use:

How to win: