

Damage Calculation Formulas for LoD

Written by Wulves, with base formula info and insights provided by Drew, tfz, Zychronix, and Monoxide

-If anything is missing or incorrect, please tag Wulves in the [LoD Discord server](#).-

-Necessary Terms-

Floor - Round a number down to remove decimals.

Round - In the case where the game wants to round, before it divides it applies the formula:

$(x + y/2) / y$

Y = divisor

X = number to be divided

For example:

$(28050 + 100/2) / 100$

$(28050 + 50) / 100$

$28100 / 100$

281

Modifiers - Defined as occurring after all other calculations, Modifiers are the last step before Observed Damage appears on screen. All Modifiers are simply multiplied with the calculated damage, so it does not matter the order in which they occur.

- **Target Fear** - if the Target has the Fear Status then (2) otherwise (1)
- **Attacker Fear** - if the Attacker has the Fear Status then = $(1 / 2)$ otherwise (1)
- **Power** - if no Power items used = (1), otherwise $[(1) + (\text{Attacker Power} + \text{Target Power})]$
- **Field** - if the attack element neither matches nor is the opposite of special field = (1), otherwise $[(1) + (\text{Attack Element})]$
- **Element** - if the Target Element neither matches nor is the opposite of attack element = (1), otherwise $[(1) + (\text{Target Element})]$
- **Guard** - if the Target's last action was Guard = $(1 / 2)$ otherwise (1)
- **Destroyer Mace** - if Haschel has Destroyer Mace equipped and HP in the Blue range (1), if in Yellow range $(3/2)$, if in Red range (2)

Modifier Reference Chart

Modifier Name	Condition	True	False
<i>Target Fear</i>	Target has Fear	2	1
<i>Attacker Fear</i>	Attacker has Fear	1/2	1
<i>*Power</i>	$1 + (\text{Attacker Power} + \text{Target Power})$	N/A	N/A
<i>*Field</i>	$1 + (\text{Attack Element})$	N/A	N/A
<i>*Element</i>	$1 + (\text{Target Element})$	N/A	N/A
<i>Guard</i>	Target's last action was Guard	1/2	1

Damage Calculation Formulas for LoD

<i>Destroyer Mace</i>	HPY, HPR	3/2, 2	1
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*These modifiers are calculated using the variables in the tables below.

Power Modifier Variables Chart

Variable	*Condition	Up	Down
<i>Attacker Power</i>	set to	+1/2	-1/2
<i>Target Power</i>	set to	-1/2	+1/2

*Power Up and Power Down are exclusive, so a target is only affected by the most recently applied.

Field Modifier Variable Chart

Variable	Condition	Matches	Opposite
<i>Attack Element</i>	compared to Special Field Element	+1/2	-1/2

Element Modifier Variable Chart

Variable	Condition	Matches	Opposite
<i>Target Element</i>	compared to Attack Element	-1/2	+1/2

Player Formulas

Archer Attack

Wrapperless Formula: $\text{round}\{\text{AT} * (\text{LV} + 5) * 5 / \text{DF}\}$

Formula with Modifier Wrapper: $\text{floor}\{\text{floor}\{\text{floor}\{\text{floor}\{\text{round}\{\text{AT} * (\text{LV} + 5) * 5 / \text{DF}\} * \text{Target Fear} * \text{Attacker Fear}\} * \text{Power}\} * \text{Field}\} * \text{Element}\}$

-Known Limited Applicable Modifiers-

(Only apply with an elemental weapon)

Field

Element

-Known Unapplicable Modifiers-

Guard

Destroyer Mace

Additions

Note: Multiplier in the following formula does not refer to addition multi%, and instead each addition has a hidden value as seen in the Addition Multiplier & Hit Data charts below.

Damage Calculation Formulas for LoD

Wrapperless Formula: $\text{round}\{\text{floor}[\text{floor}\{[\text{hit 1} + \text{hit 2} + \dots \text{hit n}] * \text{Multiplier} / 100\} * \text{AT} / 100\} * (\text{LV} + 5) * 5 / \text{DF}\}$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}[\text{floor}\{\text{floor}[\text{round}\{\text{floor}[\text{floor}\{[\text{hit 1} + \text{hit 2} + \dots \text{hit n}] * \text{Multiplier} / 100\} * \text{AT} / 100\} * (\text{LV} + 5) * 5 / \text{DF}\} * \text{Target Fear} * \text{Attacker Fear}\} * \text{Power}\} * \text{Field}\} * \text{Element}\} * \text{Destroyer Mace}]$

Addition Hit Data

Addition Name	Hit 1	Hit 2	Hit 3	Hit 4	Hit 5	Hit 6	Hit 7	Hit 8	Perfect
<i>Double Slash</i>	100	+50							150
<i>Volcano</i>	50	+50	+50	+50					200
<i>Burning Rush</i>	50	+50	+50						150
<i>Crush Dance</i>	30	+30	+30	+30	+30				150
<i>Madness Hero</i>	20	+20	+20	+20	+10	+10			100
<i>Moon Strike</i>	30	+30	+30	+30	+30	+30	+20		200
<i>Blazing Dynamo</i>	40	+30	+30	+30	+30	+30	+30	+30	250
Addition Name	Hit 1	Hit 2	Hit 3	Hit 4	Hit 5	Hit 6	Hit 7	Hit 8	Perfect
<i>Harpoon</i>	75	+25							100
<i>Spinning Cane</i>	50	+25	+25						100
<i>Rod Typhoon</i>	30	+30	+30	+30	+30				150
<i>Gust of Wind Dance</i>	30	+30	+30	+30	+30	+30	+20		200
<i>Flower Storm</i>	30	+30	+30	+40	+40	+40	+40	+50	300
Addition Name	Hit 1	Hit 2	Hit 3	Hit 4	Hit 5	Hit 6	Hit 7	Hit 8	Perfect
<i>Whip Smack</i>	75	+25							100
<i>More & More</i>	50	+50	+50						150
<i>Hard Blade</i>	20	+20	+20	+20	+10	+10			100
<i>Demon's Dance</i>	30	+30	+30	+30	+20	+20	+20	+20	200
Addition Name	Hit 1	Hit 2	Hit 3	Hit 4	Hit 5	Hit 6	Hit 7	Hit 8	Perfect
<i>Double Punch</i>	75	+25							100
<i>Flurry of Styx</i>	100	+25	+25						150
<i>Summon 4 Gods</i>	25	+25	+25	+25					100
<i>5 Ring Shattering</i>	30	+30	+30	+30	+30				150
<i>Hex Hammer</i>	30	+30	+30	+30	+30	+30	+20		200
<i>Omni Sweep</i>	30	+30	+30	+40	+40	+40	+40	+50	300
Addition Name	Hit 1	Hit 2	Hit 3	Hit 4	Hit 5	Hit 6	Hit 7	Hit 8	Perfect
<i>Double Smack</i>	75	+25							100
<i>Hammer Spin</i>	50	+50	+25	+25					150
<i>Cool Boogie</i>	20	+20	+20	+20	+20				100
<i>Cat's Cradle</i>	30	+20	+20	+20	+20	+20	+20		150
<i>Perky Step</i>	30	+30	+30	+30	+20	+20	+20	+20	200

Damage Calculation Formulas for LoD

Addition Name	Hit 1	Hit 2	Hit 3	Hit 4	Hit 5	Hit 6	Hit 7	Hit 8	Perfect
<i>Pursuit</i>	75	+25							100
<i>Inferno</i>	40	+20	+20	+20					100
<i>Bone Crush</i>	50	+30	+30	+30	+30	+30			200

Addition Multiplier Data

Addition Name	Lv 1	Lv 2	Lv 3	Lv 4	Lv 5
<i>Double Slash</i>	100	105	110	120	135
<i>Volcano</i>	100	105	110	115	125
<i>Burning Rush</i>	100	100	100	100	100
<i>Crush Dance</i>	100	115	130	145	167
<i>Madness Hero</i>	100	100	100	100	100
<i>Moon Strike</i>	100	120	140	160	175
<i>Blazing Dynamo</i>	100	120	140	160	180
Addition Name	Lv 1	Lv 2	Lv 3	Lv 4	Lv 5
<i>Harpoon</i>	100	110	120	130	150
<i>Spinning Cane</i>	100	125	150	175	200
<i>Rod Typhoon</i>	100	108	116	124	135
<i>Gust of Wind Dance</i>	100	120	140	160	175
<i>Flower Storm</i>	100	108	116	124	135
Addition Name	Lv 1	Lv 2	Lv 3	Lv 4	Lv 5
<i>Whip Smack</i>	100	125	150	175	200
<i>More & More</i>	100	100	100	100	100
<i>Hard Blade</i>	100	150	200	250	300
<i>Demon's Dance</i>	100	140	180	220	250
Addition Name	Lv 1	Lv 2	Lv 3	Lv 4	Lv 5
<i>Double Punch</i>	100	110	120	130	150
<i>Flurry of Styx</i>	100	108	116	124	135
<i>Summon 4 Gods</i>	100	100	100	100	100
<i>5 Ring Shattering</i>	100	125	150	175	200
<i>Hex Hammer</i>	100	125	150	175	200
<i>Omni Sweep</i>	100	115	130	145	167
Addition Name	Lv 1	Lv 2	Lv 3	Lv 4	Lv 5
<i>Double Smack</i>	100	110	120	130	150
<i>Hammer Spin</i>	100	108	116	124	135
<i>Cool Boogie</i>	100	100	100	100	100
<i>Cat's Cradle</i>	100	130	160	190	234
<i>Perky Step</i>	100	150	200	250	300
Addition Name	Lv 1	Lv 2	Lv 3	Lv 4	Lv 5

Damage Calculation Formulas for LoD

<i>Pursuit</i>	100	110	120	130	150
<i>Inferno</i>	100	125	150	175	200
<i>Bone Crush</i>	100	110	120	130	150

-Known Limited Applicable Modifiers-

(Only apply with an elemental weapon)

Field

Element

-Known Unapplicable Modifiers-

Guard

Fun Fact: If hitting a perfect addition that is max level, you can replace {[hit 1 + hit 2 + ... hit n] * Multiplier / 100} in the formula with the percent shown in the Additions menu under the DAM% column.

Item Magic

Note: Multiplier in the following formula refers to the % you achieve through mashing, while BID refers to the BID Data chart below.

Multi Items

Wrapperless Formula: $\text{floor}[\text{floor}\{\text{floor}[(\text{MAT} * \text{Multiplier}\% / 100)] * (\text{LV} + 5) * 5 / \text{MDF}\} * \text{BID} / 100]$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}[\text{floor}\{\text{floor}[\text{floor}\{\text{floor}[(\text{MAT} * \text{Multiplier}\% / 100)] * (\text{LV} + 5) * 5 / \text{MDF}\} * \text{BID} / 100] * \text{Target Fear} * \text{Attacker Fear}\} * \text{Power}\} * \text{Field}\} * \text{Element}]$

Powerful Items and Detonate Rock

Wrapperless Formula: $\text{floor}\{\text{floor}[(\text{LV} + 5) * \text{MAT} * 5 / \text{MDF}] * \text{BID} / 100\}$

Formula with Modifier Wrapper: $\text{floor}\{\text{floor}[\text{floor}\{\text{floor}[\text{floor}\{\text{floor}[(\text{LV} + 5) * \text{MAT} * 5 / \text{MDF}] * \text{BID} / 100\} * \text{Target Fear} * \text{Attacker Fear}\} * \text{Power}\} * \text{Field}\} * \text{Element}\}$

BID Data

Item Type	BID
<i>Detonate Rock</i>	100
<i>All Target Multi</i>	100
<i>Single Target Multi</i>	150
<i>All Target Powerful</i>	300
<i>Psyche Bomb X</i>	400

Damage Calculation Formulas for LoD

-Known Unapplicable Modifiers-

Guard

Destroyer Mace

Dragoon Archer Attack

Wrapperless Formula: $\text{round}\{\text{floor}[(AT * DRGNAT\% / 100)] * (LV + 5) * 5 / DF\}$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}[\text{round}\{\text{floor}[(AT * DRGNAT\% / 100)] * (LV + 5) * 5 / DF\} * \text{Target Fear} * \text{Power}\} * \text{Field}\} * \text{Element}]$

-Known Limited Applicable Modifiers-

(Only apply with an elemental weapon)

Field

Element

-Known Unapplicable Modifiers-

Attacker Fear

Guard

Destroyer Mace

Dragoon Additions

Wrapperless Formula: $\text{round}\{\text{floor}[\text{floor}\{[0.05(\text{Successful Inputs}^2) - 0.05\text{Successful Inputs} + 1] * 100 * DRGNAT\% / 100\} * AT / 100] * (LV + 5) * 5 / DF\}$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}[\text{round}\{\text{floor}[\text{floor}\{[0.05(\text{Successful Inputs}^2) - 0.05\text{Successful Inputs} + 1] * 100 * DRGNAT\% / 100\} * AT / 100] * (LV + 5) * 5 / DF\} * \text{Target Fear} * \text{Power}\} * \text{Field}\} * \text{Element}]$

-Known Limited Applicable Modifiers-

(Only apply with an elemental weapon)

Field

Element

-Known Unapplicable Modifiers-

Attacker Fear

Guard

Destroyer Mace

-Note-

While most can achieve a maximum of 5 Successful Inputs, Kongol is limited as he can only achieve up to 4.

Damage Calculation Formulas for LoD

Dragoon Magic

Note: DRGNMAT% refers to the number seen on the status menu under the Dragoon column and on the MAT row. For Multipliers, please use the Dragoon Spell Multipliers chart below.

Wrapperless Formula: $\text{floor}[\text{floor}\{\text{floor}[(\text{MAT} * \text{DRGNMAT}\% / 100)] * (\text{LV} + 5) * 5 / \text{MDF}\} * \text{Multiplier} / 100]$

Formula with Modifier Wrapper: $\text{floor}\{\text{floor}\{\text{floor}\{\text{floor}\{\text{floor}\{\text{floor}[(\text{MAT} * \text{DRGNMAT}\% / 100)] * (\text{LV} + 5) * 5 / \text{MDF}\} * \text{Multiplier} / 100\} * \text{Target Fear} * \text{Power}\} * \text{Field}\} * \text{Element}\}$

Dragoon Spell Multipliers

Dart	Multiplier
<i>Flame Shot</i>	200
<i>Explosion</i>	100
<i>Final Burst</i>	300
<i>Red-Eye Dragon</i>	300
<i>Divine DG Ball</i>	400
<i>Divine DG Cannon</i>	600
Lavitz/Albert	Multiplier
<i>Wing Blaster</i>	100
<i>Gasless</i>	300
<i>Jade Dragon</i>	300
Rose	Multiplier
<i>Astral Drain</i>	200
<i>Death Dimension</i>	100
<i>Dark Dragon</i>	400
Shana/Miranda	Multiplier
<i>Star Children</i>	100
<i>W Silver Dragon</i>	300
Haschel	Multiplier
<i>Atomic Mind</i>	100
<i>Thunder Kid</i>	200
<i>Thunder God</i>	300
<i>Violet Dragon</i>	400
Meru	Multiplier
<i>Freezing Ring</i>	200
<i>Diamond Dust</i>	200
<i>Blue Sea Dragon</i>	400
Kongol	Multiplier
<i>Grand Stream</i>	150

Damage Calculation Formulas for LoD

<i>Meteor Strike</i>	200
<i>Golden Dragon</i>	300

-Known Unapplicable Modifiers-

Attacker Fear
Guard
Destroyer Mace

Enemy Formulas

Enemy Physical Attack

Note: Attack Multiplier refers to a hidden value that cannot be seen in game, but are available here: [LoD Combat - Enemy Abilities & Behavior](#) For example, Knight of Sandora's Sword Slash deals 1x Phys, which means the Attack Multiplier is 1.

Wrapperless Formula: $\text{floor}[(AT^2 * 5 / DF)] * \text{Attack Multiplier}$

Formula with Modifier Wrapper: $\text{floor}\{\text{floor}\{\text{floor}\{\text{floor}[(AT^2 * 5 / DF)] * \text{Attack Multiplier} * \text{Target Fear} * \text{Attacker Fear}\} * \text{Power}\} * \text{Guard}\}$

-Known Unapplicable Modifiers-

Field
Element
Destroyer Mace

-Note-

Rose Storm is treated as "Target Power Up," which is why the spell and item do not actually stack for defensive purposes.

Enemy Magical Attack

Note: Attack Multiplier refers to a hidden value that cannot be seen in game, but are available here: [LoD Combat - Enemy Abilities & Behavior](#) For example, Commander's Burn Out deals 1.5x Fire, which means the Attack Multiplier is 1.5.

Wrapperless Formula: $\text{floor}[(MAT^2 * 5 / MDF)] * \text{Attack Multiplier}$

Formula with Modifier Wrapper: $\text{floor}\{\text{floor}\{\text{floor}\{\text{floor}\{\text{floor}[(MAT^2 * 5 / MDF)] * \text{Attack Multiplier} * \text{Target Fear} * \text{Attacker Fear}\} * \text{Power}\} * \text{Field}\} * \text{Element}\} * \text{Guard}\}$

-Known Unapplicable Modifiers-

Destroyer Mace

Damage Calculation Formulas for LoD

Enemy Percentage Attacks

Ghost Captain's Haunting Bolt

Wrapperless Formula: $\text{floor}[(\text{Target's Current HP} / 2)]$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}[(\text{Target's Current HP} / 2)] * \text{Target Fear}\} * \text{Guard}]$

-Known Unapplicable Modifiers-

Attacker Fear

Power

Field

Element

Rare Monster Basic Attack

Wrapperless Formula: $\text{floor}[(\text{Target's Max HP} / 10)]$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}[(\text{Target's Max HP} / 10)] * \text{Target Fear}\} * \text{Guard}]$

-Known Unapplicable Modifiers-

Attacker Fear

Power

Field

Element

Unique Formulas & Modifiers

Drake's Wire Damage

Note: While Drake's Wire deals damage when the player is attacking, to keep from being inconsistent, Attacker in this document refers to the one dealing damage. Please keep this in mind that Attacker is Wire and Target is the player character.

Wrapperless Formula: $\text{floor}(1000 / \text{DF})$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}(1000 / \text{DF}) * \text{Target Fear}\} * \text{Power}]$

-Known Unapplicable Modifiers-

Attacker Fear

Field

Element

Damage Calculation Formulas for LoD

Guard

Addition Counter Damage

Note: While Addition Counter deals damage when the player is attacking, to keep from being inconsistent, Attacker in this document refers to the one dealing damage. Please keep this in mind: Attacker is the enemy countering and Target is the player character.

Wrapperless Formula: $\text{floor}\{\text{floor}[(AT^2 * 250 / DF)] / 100\}$

Formula with Modifier Wrapper: $\text{floor}\{\text{floor}[\text{floor}\{\text{floor}[(AT^2 * 250 / DF)] / 100\} * \text{Target Fear} * \text{Attacker Fear}] * \text{Power}\}$

-Known Unapplicable Modifiers-

Field

Element

Guard

Destroyer Mace

Feyrbrand's Attacking Power Up Modifier

Note: Feyrbrand's moves also have this modifier applied.

Formula: $\text{floor}\{[\text{formula}] * [(10 + \text{Number of Times Attacking Power Up has been used}) / 10]\}$

Rare Monster's Damage Mitigation

Note: When attacking a Rare Monster, Damage is set to 1 and ignores normal stats and formulas.

Wrapperless Formula: [1]

Formula with Modifier Wrapper: $\text{floor}\{\text{floor}[1 * \text{Attacker Fear}] * \text{Destroyer Mace}\}$

-Known Unapplicable Modifiers-

Target Fear

Power

Field

Element

Guard

Other Formulas

Status Damage

Damage Calculation Formulas for LoD

Confusion

Wrapperless Formula: $\text{floor}(\text{Attacker's Max HP} / 5)$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}(\text{Attacker's Max HP} / 5) * \text{Target Fear}\} * \text{Guard}]$

-Known Unapplicable Modifiers-

Attacker Fear
Power
Field
Element
Destroyer Mace

Bewitchment

Wrapperless Formula: $\text{floor}(\text{Attacker's Max HP} / 5)$

Formula with Modifier Wrapper: $\text{floor}[\text{floor}\{\text{floor}(\text{Attacker's Max HP} / 5) * \text{Target Fear}\} * \text{Guard}]$

-Known Unapplicable Modifiers-

Attacker Fear
Power
Field
Element
Destroyer Mace

Poison

Formula: $\text{floor}(\text{Target's Max HP} / 10)$

-Known Unapplicable Modifiers-

Target Fear
Attacker Fear
Power
Field
Element
Guard
Destroyer Mace

Notes

General Info

Wrapper for Modifiers

Damage Calculation Formulas for LoD

floor[floor{floor[floor{floor{floor{

[Formula without Modifiers goes here]

* Target Fear * Attacker Fear} * Power] * Field} * Element] * Guard} * Destroyer Mace]

Avoiding Floating Point Errors

LoD's formulas truncate decimals from its math, i.e. Instead of $(1.1 \times 255 = 280)$ LoD does:

$(110 / 100 \times 255)$

$(255 \times 110 / 100)$

$(28050 / 100)$ - LoD cannot hold onto decimals, so this divides into (280) without rounding.

(When the game wants to round, it moves around decimals by using the formula below.)