PINNGUAQ

Lesson Plan

ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᖅ ᑭᐸᓛᕆᑦᑐᒡᒍᑕᐅᓪᓗᑎᑦ 2: ᐊᑐᖅᑕᐅᓪᓗᐊᓲᑦ ᖃᕋᓴᐅᔭᒃᑯᑦ ᐊᒥᐊᕆᓗᓂ ᒍᕝᕕᒃᓴᐃᔪᓪ

Level: Grade 9-12 • **Topic:** Art Design • **Subjects:** Art, Computer Studies

ᑎᑎᕋᖅᑎ

ᐃᐊᓐ ᒪᑭᓖᓐ (Ian MacLean)

ᐃᐊᓐ ᒪᑭᓖᓐ ᐱᓕᕆᔨᒻᒪᕆᐅᕗᖅ ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᖅ ᑭᐸᓛᕆᑦᑐᒡᒍᑕᐅᓪᓗᑎᑦ ᑕᒪᒃᑯᓂᖓ ᐋᖅᑭᒃᓱᐃᔨᒻᒪᕆᐅᕗᖅ/ᖃᕋᓴᐅᔭᒃᑯᑦ ᐊᔾᔨᙳᐊᑦ ᓈᑎᑕᐅᓲᖑᓂᖏᖕᓂᒃ ᑎᑎᖅᑐᒐᖅᑎᓗ ᐃᖅᑲᓇᐃᔮᖅᑲᓯᒪᔪᑐᖃᖅ ᐱᙳᐊᖅᑐᓕᕆᕙᓐᓂᖏᑦ ᖃᕋᓴᐅᔭᒃᑯᑦ 16 ᐊᕐᕌᒍᓕᖅᑐᓂᑦ. ᐃᒻᒥᓂᒃ ᐅᖃᓲᖅ ᐃᓕᓐᓂᐊᖅᓯᒪᔪᒻᒪᕆᐅᓂᕋᖅᓱᓂ ᓯᓚᑐᔪᒻᒪᕆᐅᓪᓗᓂ ᐊᒻᒪᓗ ᒪᑭᑎᒐᖃᖅᑐᖅ ᐊᔾᔨᐅᙱᑦᑐᒥᒃ, ᑎᕐᓖᓇᖅᑐᓂᑦ ᐅᖃᓕᒫᒐᓂᒃ ᑎᑎᖅᑐᒐᐅᔭᖅᓯᒪᔪᖃᐅᖅᑐᓂᒃ ᓄᐊᑦᑎᓲᖑᓪᓗᓂ, ᐊᒻᒪᓗ ᒥᑭᔪᑕᐅᓂᒃ ᐱᕐᑯᑎᖃᐅᖅᑐᖅ ᐃᓕᓐᓂᐊᖅᓯᒪᔪᒻᒪᕆᐅᓂᕋᕐᓂᖓ ᓯᓚᑐᔪᒻᒪᕆᐅᓂᕋᕐᓂᖓᓗ ᐃᒻᒥᖕᓂᒃ ᓇᓗᓇᐃᖅᑕᐅᕐᑯᓪᓗᒋᑦ.

ᑐᑭᓯᒋᐊᙱᑭᑎᖏᑦ

ᑕᐅᑐᒐᒃᓴᐅᓪᓗᓂ ᒪᕐᕈᐃᓕᖅᑲᖓᔪᑎᒍᑦ ᑐᙱᕕᒋᔭᐅᓲᖑᕗᖅ ᐊᒥᓱᓄᑦ ᖃᕋᓴᐅᔭᒃᑰᕈᓐᓇᐅᑎᐅᔪᓂᑦ, ᑕᒪᒃᑮᓐᓂᒃᓂ ᐱᙳᐊᕈᑕᐅᓲᑦ ᐊᒻᒪᓗ ᖃᕋᓴᐅᔭᓕᕆᔾᔪᑎᓅᕆᓕᖕᓄᑦ. ᖃᑦᑏᓐᓇᐅᒻᒪᑕ ᖃᓄᐃᓕᐅᕋᒃᓴᑦ ᑭᒡᓕᖃᕈᑎᖏᖕᓂᒃ ᐅᖓᑕᐅᔨᒐᒃᓴᑦ ᐊᑐᕐᓗᒍ ᖃᕋᓴᐅᔭᒃᑯᑦ ᐊᔾᔨᙳᐊᓕᐅᕐᓂᖅ ᐊᒻᒪᓗ ᐃᑲᔪᕐᓗᒋᑦ ᓴᓇᐅᒐᑎᑦ ᐱᓕᕆᔨᒻᒪᕆᒻᒧᑦ ᑲᒪᒋᔭᒥᓂᐅᔮᕐᓗᑎᑦ. ᑕᕝᕙᓂ ᐃᓕᓐᓂᐊᕋᒃᓴᒥ ᐃᓕᓐᓂᐊᖅᑎᑦᑎᔪᖃᒃᑲᓐᓂᖅᑐᖅ ᐃᓕᓐᓂᐊᖅᑕᐅᒋᐊᙱᑭᑎᖏᖕᓂᒃ ᑭᐸᓛᕆᑦᑐᓂᑦ ᐊᒥᐊᕆᓗᓂ ᐊᔾᔨᙳᐊᓕᐅᕐᓂᖅ 01, ᐃᓕᓐᓂᐊᑎᑦᑎᒃᑲᓐᓂᖅᑐᑎᑦᓗ ᖃᓄᐃᓕᐅᕋᒃᓴᐅᔪᓂᒃ ᑎᑎᖅᑐᒐᐅᔭᕐᓗᓂ ᐊᒻᒪᓗ ᑕᐃᒍᓯᖏᑦ, ᐊᒻᒪᓗ ᐅᖃᐅᓯᖃᕐᒥᔪᑦ ᐊᑲᐅᙱᓕᐅᕈᑕᐅᒃᑲᔪᑦᑐᑦ ᖃᓄᐃᕐᑑᓂᖏᑦ, ᐊᑐᕐᓗᑎᑦ ᑭᒃᑯᑐᐃᓐᓇᕐᓄᑦ ᐊᑐᕋᒃᓴᑦ ᑎᑎᖅᑐᒐᐅᔭᕐᓗᓂ ᖃᕋᓴᐅᔭᓕᕆᔾᔪᑎ ᖃᓪᓗᓈᑎᑐᑦ ᑕᐃᔭᐅᔪᖅ ᒍᕝᕕᒃᓴᐃᔪᓪ.

ᐃᓕᓐᓂᐊᖅᑕᐅᓇᓱᐊᕐᓂᖏᑦ

ᑎᑎᖅᑐᒐᐅᔭᕐᓗᓂ ᐊᑐᖅᑕᐅᓲᑦ ᐊᔾᔨᙳᐊᓂᒃ ᐃᓕᓐᓂᐊᑎᑦᑎᒋᐊᙳᒐᕈᑕᐅᔪᑦ ᑕᕝᕙᓂ ᐃᓕᓐᓂᐊᕋᒃᓴᒥ ᐃᑲᔪᕋᔭᖅᑐᖅ ᐱᐅᓯᕙᓪᓕᕐᓗᑎᑦ ᐱᐅᓂᖏᑦ ᐃᓕᓐᓂᐊᖅᑏᑦ ᐱᔭᕇᖅᓯᒪᔭᖏᑦ ᑭᐸᓛᕐᑐᓂᒃ ᐊᒥᐊᓇᓗᓂ ᑎᑎᖅᑐᒐᐅᔭᕐᓂᖅ ᖃᕋᓴᐅᔭᒃᑯᑦ. ᐃᓕᓐᓂᐊᖅᑏᑦ ᑐᑭᓯᕙᓪᓕᒃᑲᓐᓂᕐᓂᐊᖅᑐᑦ ᐊᑐᕐᓗᓂ ᐊᔾᔨᙳᐊᕐᒥ ᐋᖅᑭᒋᐊᖅᑎᑦᑎᒍᑎᒥᒃ ᖃᕋᓴᐅᔭᒃᑯᖅᑐᒥᒃ ᐊᔾᔨᙳᐊᓕᐅᑦᑎᐊᕐᓂᐊᕐᒪᑕ ᐊᒻᒪᓗᑦᑕᐅᖅ ᖃᓄᐃᑦᑐᑦ ᑕᒻᒪᖅᑕᐅᒃᑲᔪᑦᑐᑦ ᐊᑐᖅᑕᐃᓕᔭᐅᓗᑎᑦ.

ᑕᐃᒍᓯᖏᑦ

- **ᐱᐅᔫᓂᖓ** – ᖃᐅᒪᓂᖓ ᐅᕝᕙᓘᓐᓃᑦ ᑖᕐᓂᖓ ᐊᒥᐊᑉ.
- **ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᔾᔭᙱᑦᑐᑦ** – ᓴᖅᑭᔾᔭᕐᓂᖏᑦ ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᙱᑦᑐᑦ ᓴᖅᑭᓱᑦ ᓴᓂᒧᑦ ᓴᖑᖓᔪᓪᓗ ᑐᑭᓕᐊᖅᑎᑕᐅᓇᓱᐊᖅᑐᑎᑦ.
- **ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᔾᔭᙱᑦᑐᑦ ᐊᒥᐊᕐᑎᐊᖅᑕᐅᓂᖏᑦ** – ᐋᖅᑭᒋᐊᓇᔾᔪᑎ ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᔾᔭᙱᑦᑐᑦ ᐊᒥᐊᕐᑎᐊᖅᑕᐅᓗᑎᑦ.
- **ᐊᒥᐊᕐᑎᐊᕈᑏᑦ** – ᐊᔾᔨᒌᙱᑦᑐᑦ ᐊᒥᐊᑦ ᖃᐅᒪᔪᒡᒍᑎᖏᑦ ᐊᑐᕋᒃᓴᐅᔪᑦ ᐊᒥᐊᕐᑎᐊᓕᕐᑯᓪᓗᒋᑦ ᐱᐅᓯᒋᐊᕐᓂᐊᕐᒪᑕ ᐊᒥᐊᑦ.
- **ᐊᒥᐊᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᓴᓂᓕᓇᑎᑕᐅᓂᖏᑦ** – ᐃᓕᔭᐅᓂᖏᑦ ᒪᕐᑑᒃ ᐅᖓᑖᓄᓪᓘᓐᓃᑦ ᐊᒥᐊᑦ ᖃᓂᒌᑦᑐᒡᒍᑕᐅᓗᑎᑦ ᐊᑕᐅᑦᑎᕈᕐᔫᒥᓂᐊᕐᒪᑕ.
- **ᑭᒡᓕᖏᑦ ᐊᒥᐊᕐᑎᐊᕐᑯᓪᓗᒋᑦ** – “ᓂᕈᐊᕐᓗᓂ ᑭᒡᓕᖏᖕᓂᒃ ᐊᒥᐊᖑᔪᑦ” ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎ ᑭᒡᓕᖏᑦ ᐊᒥᐊᖃᑦᑎᐊᕐᓂᐊᕐᒪᑕ ᖃᐅᒻᒪᓇᐊᕐᓗᒋᑦ ᑭᒡᓕᖏᑦ ᐊᒥᐊᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᒥᒃ.
- **ᑕᑯᒃᓴᐅᓕᖅᑎᑦᑎᔪᑦ ᐊᒥᐊᖅᑕᐅᔪᑦ ᑭᒡᓕᖏᖕᓂᒃ ᑐᑭᓕᐊᖅᑎᑕᐅᒐᓱᐊᖅᑐᑉ** – ᑕᑯᒃᓴᐅᑎᑕᐅᑲᓪᓚᑦᑐᑦ ᑐᑭᓕᐊᕐᓂᖏᑦ ᑭᑉᐸᓛᕐᑐᑦ ᐊᒥᐊᖅᑕᐅᓯᒪᓂᖏᑦ ᐃᓕᔭᐅᓯᒪᓂᖏᑦ ᐊᔾᔨᒌᑉᐸᓗᒃᑐᑦ ᐱᐅᔫᓂᑎᖏᑦ ᖃᐅᔨᒪᓂᖅᓴᑦ ᐊᓯᐊᓄᐊᖅᑕᐅᓪᓗᑎᑦ ᐊᑕᐅᓯᕐᒧᑦ ᑭᑉᐸᓛᕐᑐᒧᑦ ᐊᒥᐊᖅᑕᐅᔪᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᔪᒥᒃ.
- **ᖃᓄᐃᑑᓂᖏᑦ ᐊᒥᐊᖅᑕᐅᔪᑦ** – ᐊᒥᐊᖅᑕᐅᔪᑦ ᐊᔾᔨᙳᐊᑦ ᒪᓕᑦᑐᒍ ᖃᓄᐃᑑᓂᖓ ᑎᑎᖅᑐᒐᐅᔭᖅᓯᒪᓂᖓᑕ, ᓱᑯᑦᑎᐊᓈᖓᓂᖓ ᖃᐅᒪᖓᑕᐅᙱᑦᑐᖅ.

ᑐᑭᒧᐊᕈᑏᑦ ᐊᐱᖅᑯᑕᐅᔪᑦ

1. ᑭᓱᒻᒪᑦ ᐊᔾᔨᒌᙱᓐᓂᖏᑦ, ᐊᒻᒪᓗ ᖃᓄᖅ ᐃᑲᔪᓲᖑᕙ ᐋᖅᑭᒍᑎᒋᔭᐅᓗᓂ ᖃᓄᐃᑑᓂᖓᑕ ᐊᒻᒪᓗ ᐊᒥᐊᖏᑕ ᖃᓄᐃᑑᓂᖏᑦ?
2. ᑭᓱᒻᒪᑦ ᑕᐅᑐᑦᑕᐅᓪᓗᓂ ᖃᓄᐃᓕᖓᔪᕐᔫᔭᖅᑐᑦ?
3. ᖃᓄᖅ ᓯᓚᐃᕐᓇᓗᒍ ᑕᐅᑐᑦᑕᐅᓂᖓ ᐃᑲᔪᕋᔭᖅᐸ ᐊᔾᔨᙳᐊᖅ ᐱᐅᓯᑎᑕᐅᒋᐊᕐᓗᓂ? ᖃᓄᖅ ᐱᐅᙱᓂᖅᓴᐅᓕᖅᑎᑦᑎᔪᖃᕈᓐᓇᖅᐸ?

ᐃᓕᓐᓂᐊᕈᑎᒃᓴᓄᑦ ᑲᓱᖅᓯᒪᓂᖏᑦ

ᑖᓐᓇ ᐃᓕᓐᓂᐊᕈᑎᒃᓴᖅ ᐱᕕᖃᖅᑎᑦᑎᓂᖅᑲᖅᐳᖅ ᑲᒪᒋᔭᐅᓗᑎᑦ ᐃᓕᓐᓂᐊᕈᑎᒃᓴᑦ ᓂᓇᐅᒋᔭᐅᓂᖏᑦ ᓴᓇᙳᐊᖅᑐᓕᓇᓂᕐᒥᒃ ᐊᒻᒪᓗ ᖃᕋᓴᐅᔭᑦ ᐃᓕᓐᓂᐊᖅᑕᐅᓂᖏᑦ ᖁᑦᑎᓐᓂᓕᓐᓄᑦ 9-12. ᐱᓗᐊᖅᑐᒥᒃ, ᐃᓕᓐᓂᐊᖅᑏᑦ ᑐᑭᓯᑎᑕᐅᒋᐊᙱᕋᔭᖅᑐᑦ ᖃᕋᓴᐅᔭᓕᓇᔾᔪᑎᒥᒃ ᒍᕋᐱᒃᓴᐃᔪᓪ ᑕᐃᔭᐅᔪᒥᒃ. ᑕᒪᒃᑯᐊᓗ

ᐃᓕᓴᐅᓯᓇᔭᐅᓂᐊᖅᑐᑦ ᑕᑯᒃᓴᐅᑎᑦᑎᓂᐊᓇᕗᑦ ᖃᓄᖅ ᐊᑐᕈᓐᓇᕐᒪᖔᕐᒥᒃ ᐊᔾᔨᙳᐊᕐᒥᒃ ᐋᖅᑭᒋᐊᖅᓯᓗᑎᑦ ᖃᕋᓴᐅᔭᒃᒨᖓᔪᖅ ᐊᔾᔨᙳᐊᓕᐅᕐᓂᐊᕐᒪᑕ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᒥᓂᕐᒥᓂᒃ ᐊᑐᕐᓗᑎᑦ.

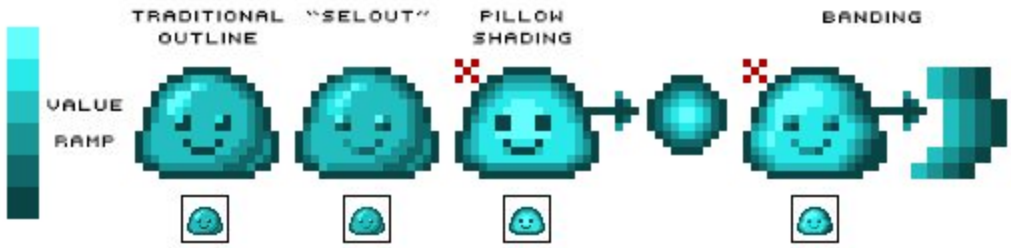
ᓯᓇᒃᑯᑖᑦ

- ᑭᐸᓇᒃᑐᒡᒍᑕᕋᓛᖅᑲᐅᖅᑐᑦ ᐊᓕᓚᔪᑦ ᑎᑎᕋᕐᕕᒃᒪᖅ
- ᐊᒥᐊᓖᑦ ᑎᑎᕋᐅᑏᑦ ᐅᕝᕙᓘᓐᓃᑦ ᑎᑎᕋᐅᑏᑦ ᐊᒥᐊᓖᑦ
- ᒍᕋᐱᒃᓴᐃᔪᓪ – ᖃᕋᓴᐅᔭᒃᑯᑦ ᐱᓗᒍ ᒍᕋᐱᒃᓴᐃᔪᓪ ᖃᕋᓴᐅᔭᓕᓇᔾᔪᑎ (ᑕᑯᓂᐊᕐᕕᐅᑉ ᐊᖅᑯᑎᖓ: https://graphicsgale.com/us/download.html)

ᖃᕋᓴᐅᔭᒃᑰᖕᒋᑦᑐᖅ ᖃᓄᐃᓕᐅᕈᑎᒋᔭᐅᓂᖕᒋᑦ

ᐊᒥᐊᕐᑎᐊᖅᑕᐅᓂᖕᒋᑦ

ᐊᒥᐊᑦ ᐋᖅᑭᒋᐊᖅᑕᐅᓲᑦ ᖃᓄᐃᑦᑑᓂᖕᒋᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᓯᒪᔪᑦ ᐊᖕᒋᓂᖕᒋᓪᓗ ᒪᕈᐃᓕᖅᑲᖕᒐᖕᙳᐊᖅᑎᑕᐅᓕᕐᑯᓪᓗᒋᑦ. ᐊᒥᐊᕐᑎᐊᒃᑲᓐᓂᓕᕐᓗᒋᑦ ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᖅ ᑭᐸᓇᑦᑐᒡᒍᑕᐅᔪᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᒥᒃ, ᐃᓚᖓ ᐱᔭᕆᐊᑭᓐᓂᖅᐹᖅ ᐱᒋᐊᕐᓗᓂ ᐱᐅᔫᓂᖓᓂᒃ ᐊᒥᐊᕐᑎᐊᖅᑕᐅᓲᖅ value ramp. ᑖᒃᑯᐊ ᐊᒥᐊᒡᒍᑏᑦ ᐊᔾᔨᒌᙱᑦᑐᓂᒃ ᖃᐅᒪᓖᑦ ᐊᒻᒪᓗ ᑖᓂᖅᑐᓖᑦ. ᐅᕝᕙᓘ ᐆᑦᑑᑎ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᖅ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᐊᑐᖅᑐᑎᑦ ᐱᔭᕆᐊᑭᑦᑐᒥᒃ ᐱᖓᓱᔪᖅᑐᑦ ᐊᒥᐊᓂᒃ ᐊᒥᐊᕐᑎᐊᕈᑎᒧᑦ, ᐊᒥᐊᒃᑲᓐᓂᓕᖅᑕᐅᓪᓗᑎᑦ ᑭᒃᓕᖕᒋᑦ ᐊᑐᖅᑕᐅᓪᓗᑎᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᐊᑐᖅᑕᐅᓲᑦ.



ᓯᕗᓪᓕᖅᐹᖅ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᐊᑐᖅᑕᐅᓂᖓ ᐊᑐᓲᖅ ᐊᒥᐊᖅᑕᐅᓪᓗᓂ ᓯᑯᑦᑎᐊᓅᖓᓄᑎᑕᐅᓪᓗᓂ ᐊᒥᐊᖅᑕᐅᓂᖓ ᖃᐅᒪᓂᖅᓴᐅᓪᓗᓂ, ᖃᐅᒪᖓ ᑕᑯᒃᓴᖅ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᖅ ᑕᐃᑲᖕᒐᖅᑐᖅ ᑕᐅᑐᖕᒍᐊᖅᑕᐅᓯᒪᔪᒥᒃ ᐃᓂᖓ ᓴᐅᒦᓐᓂᖅᓴᒥ ᖁᓛᓂ ᐊᔾᔨᖕᒍᐊᕐᒥᒃ. ᓴᖕᒋᔪᒥᒃ, ᑭᒃᓕᖃᑦᑎᐊᖅᑐᑯᓘᓪᓗᓂ, ᐃᑲᔪᓲᖅ ᑕᑯᒃᓴᐅᓂᐊᕐᒪᑦ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᑉ ᐊᔾᔨᙳᐊᖓ.

ᑭᖑᓪᓕᖅ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᖅ ᐊᒥᐊᕐᑎᐊᓇᐊᖅᑕᐅᓯᒪᒋᕗᖅ ᐊᔾᔨᐸᓗᖓᑎᒍᑦ, ᑭᓯᐊᓂᓕ ᐊᑐᓲᖅ ᓂᕈᐊᖅᑕᐅᓯᒪᔪᑦ ᑭᒃᓕᖕᒋᑦ ᐊᒥᐊᑦᑕᐅᑦᑎᐊᖅᓯᒪᓪᓗᑎᑦ, ᐅᕝᕙᓘᓐᓃᑦ “ᑭᒃᓕᖕᒋᑦ ᐊᒥᐊᕐᑎᐊᖅᑕᐅᓪᓗᑎᑦ” “selout”. ᑭᒃᓕᖓ ᐊᔾᔨᙳᐊᑉ ᑐᑭᓕᐊᓗᐊᕋᓗᙱᒻᒪᑦ ᖃᐅᒪᖓ ᐊᑦᑐᕋᐃᒻᒪᑦ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᒧᑦ, ᐊᒻᒪᓗ ᐊᑐᓲᖅ ᖃᐅᒪᓂᖅᓴᒐᓛᕐᒥᒃ ᐊᒥᐊᕐᒥᒃ ᑭᒃᓕᖓ ᐊᔾᔨᙳᐊᑉ ᐱᐅᓯᑎᑕᐅᒋᐊᕐᔫᒥᕐᑯᓪᓗᒍ, ᐊᔾᔨᙳᐊᖅ ᐱᐅᓂᖅᓴᐅᓕᖅᑐᓂ. ᐃᓗᐊᓃᑦᑐᑦ ᑐᑭᓕᐊᕐᓂᖕᒋᑦ

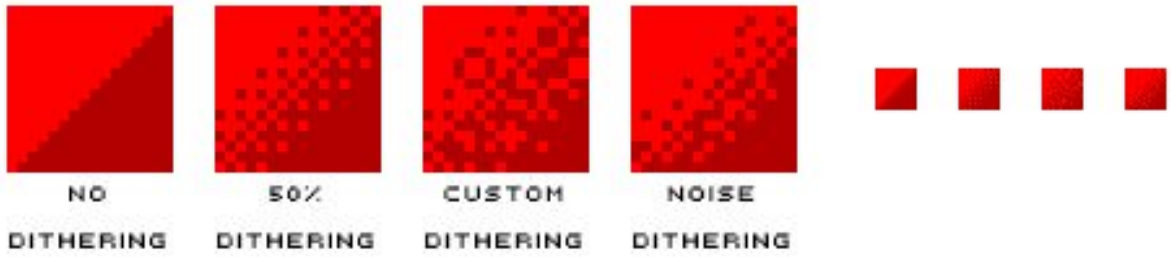
ᐱᐅᓯᑎᑕᐅᒋᐊᖅᓯᒪᒻᒥᔪᑦ ᖃᐅᔨᒪᓂᖅᓴᓄᑦ ᐊᒥᐊᕐᓄᑦ ᑕᐃᑲᙵᑦ ᐊᑐᖅᑕᒥᓂᐅᓪᓗᓂ ᐱᐅᔫᓂᖅᓴᐅᔪᒃᑯᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓯᒪᓂᖕᒐᓄᑦ.

ᐱᖓᔪᐊᑦ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᖅ ᑕᑯᒃᓴᐅᑎᑕᐅᓯᒪᕗᖅ ᐊᑐᖅᑕᐅᓲᖅ ᑕᐃᔭᐅᓪᓗᓂ “ᖃᓄᐃᑦᑑᓂᖏᑦ ᐊᒥᐊᖅᑕᐅᓯᒪᔪᑎᒍᑦ” “pillow shading,” ᖃᐅᒪᖓ ᑕᐃᑲᙵᖅᑑᔭᖅᑐᖅ ᑕᐅᑐᑦᑐᒥᒃ, ᐊᒻᒪᓗ ᐱᐅᔫᓂᖓ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓯᒪᔪᑉ ᒪᓕᑦᑐᖅ ᑕᒪᐃᓐᓂᓕᒫᖅ ᖃᓄᐃᑦᑑᓂᖓᓂᒃ ᐊᔾᔨᙳᐊᑉ. ᑕᒪᓐᓇ ᐋᖅᑭᒃᓱᐃᒍᑎ ᐊᑐᖅᑕᐅᑦᑕᐃᓕᒪᒋᐊᓕᒃ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᖅ ᑲᑕᖓᔪᕐᔪᒥᔭᖅᑎᑕᐅᓲᖕᒐᒪᑦ ᐊᒻᒪᓗ ᑕᑯᒥᓇᙱᑦᑑᔭᖅᑐᓂ.

ᑭᖑᓪᓕᖅᐹᖅ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᖅ ᐊᑐᖅᑕᓲᖅ ᐊᑐᓲᖑᒋᕗᖅ ᓱᑯᑦᑎᐊᓄᑦ ᐊᒥᐊᓇᓗᓂ ᖃᐅᒪᓂᖃᕐᓂᖓ, ᑭᓯᐊᓂᓕ ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᖅ ᑭᐸᓛᕐᑐᒡᒍᑕᐅᓪᓗᑎᑦ ᐃᓕᔭᐅᓯᒪᔪᑦ ᑕᑯᒃᓴᐅᑎᑦᑎᓂᐊᕐᒪᑕ “ᑕᑯᒃᓴᐅᑎᑦᑎᔪᑦ ᐊᒥᐊᖅᑕᐅᔪᑦ ᑭᒡᓕᖏᖕᓂᑦ ᑐᑭᓕᐊᖅᑎᑕᐅᒐᓱᐊᕐᓂᐊᕐᒪᑕ” “banding.”. ᑕᑯᒃᓴᐅᑎᑦᑎᔪᑦ ᐊᒥᐊᖅᑕᐅᔪᑦ ᑭᒡᓕᖏᖕᓂᒃ ᑐᑭᓕᐊᖅᑎᑕᐅᒐᓱᐊᓲᑦ ᐊᒥᓱᑦ ᑭᐸᓛᕐᑐᕋᓛᑦ ᐱᐅᔫᓂᖏᖕᓂᒃ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓯᒪᔪᑦ ᒪᓕᑦᑎᑦᓗᒋᑦ ᐊᔾᔨᙳᐊᑉ ᖃᓄᐃᑦᑑᓂᖓᓂᒃ ᐅᕝᕙᓘᓐᓃᑦ ᓱᑯᑦᑎᐊᓅᖓᓂᖓᓂᒃ. ᑭᐸᓛᕐᑐᕋᓛᑦ ᑕᐅᑐᑦᑐᑉ ᑕᑯᔭᖏᖕᓂᒃ ᐊᓯᐊᓅᖅᑎᑦᑎᒐᐃᒻᒪᑕ ᑐᑭᓕᐊᖅᑎᑦᑎᔫᔭᖅᑐᓂᒃ ᑕᑯᑎᑦᑎᓲᑦ ᐊᔾᔨᒌᙱᑐᒡᒍᑕᐅᔪᓂᒃ ᐱᐅᔫᓂᖓᓂᒃ ᐊᒥᐊᖅᓯᒪᔪᑉ. ᑕᑯᒃᓴᐅᑎᑦᑎᔪᑦ ᐊᒥᐊᖅᑕᐅᔪᑦ ᑭᒡᓕᖏᖕᓂᒃ ᑐᑭᓕᐊᖅᑎᑕᐅᒐᓱᐊᕐᓂᖏᑦ ᐋᖅᑮᓲᖑᒻᒪᑕ ᑕᐃᒪᐃᑕᐅᓇᓱᙱᒃᑲᓗᐊᖅᑐᓂᒃ ᑕᑯᒃᓴᐅᑎᑦᑎᓕᓲᖑᓪᓗᑎᑦ ᐊᒻᒪᓗ ᐱᔭᐅᔪᒪᙱᑦᑐᓂᒃ ᖃᓄᐃᑦᑑᓂᖏᖕᓂᒃ ᑐᑭᓕᐊᕐᓂᖏᓐᓂᓪᓗ ᑕᐃᑲᓂ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᑎᒧᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᓯᒪᔭᕐᓂᒃ, ᐊᒻᒪᓗ ᑎᑎᖅᑐᒐᐅᔭᖅᓯᒪᔭᖏᑦ ᐊᒥᐊᖅᓯᒪᑦᑎᐊᙱᑦᑑᔭᓕᖅᑐᓂᓗ.

ᐊᒥᐊᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᓴᓂᓕᓇᑎᑕᐅᓂᖏᑦ

ᐊᓯᐊᑦᑕᐅᖅ ᐊᒥᐊᑦᑎᐊᕈᓯᖅ ᐊᑐᖅᑕᐅᓲᖅ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓕᕐᑯᓪᓗᒋᑦ ᐊᔾᔨᙳᐊᑦ ᐅᕝᕙᓘᓐᓃᑦ ᖃᓄᐃᑦᑑᓂᖏᑦ ᐱᐅᓯᑎᑕᐅᒋᐊᕐᔫᒥᕐᑯᓪᓗᒋᑦ ᑕᐃᔭᐅᕗᖅ “ᐊᒥᐊᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᓴᓂᓕᓇᑎᑕᐅᓂᖏᑦ” “dithering.”. ᐊᒥᐊᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᓴᓂᓕᓇᑎᑕᐅᓂᖏᑦ ᐊᑐᖅᑕᐅᓲᖅ ᒪᕐᕉᒃ ᐅᖓᑖᓄᓪᓘᓐᓃᑦ ᐊᒥᐊᑦ ᑲᑎᑕᐅᓲᑦ. ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᖅ ᑭᒡᓕᖏᖕᓂᑦ ᐃᓕᔭᐅᓲᑦ ᐊᔾᔨᙳᐊᓕᐅᖅᑎᑕᐅᓪᓗᑎᑦ ᐅᕝᕙᓘᓐᓂᑦ ᓇᓕᐊᓐᓄᑐᐃᓐᓈᖅᑎᑕᐅᓪᓗᑎᑦ, ᑲᑎᙵᐅᓂᖅᓴᐅᓪᓗᑎᓪᓘᓐᓃᑦ ᐅᖓᓯᒌᓐᓂᖅᓴᐅᓪᓗᑎᓪᓘᓐᓃᑦ, ᐃᔾ ᑕᐅᑐᓕᕋᔭᕐᒪᑦ ᐊᒥᐊᑦ ᑲᑎᑕᐅᓯᒪᔪᑦ ᑕᑯᔭᐅᓂᖅᓴᐅᓪᓗᑎᑦ ᑲᑎᙵᐅᖅᓯᒪᓗᐊᕐᓂᖏᑦ.

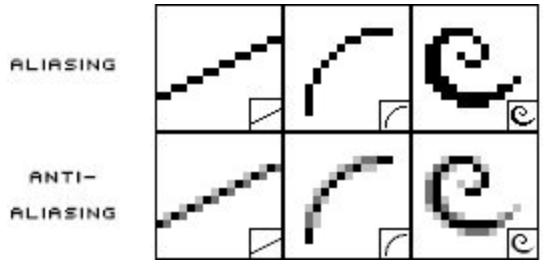


ᖁᓛᓃᑦᑐᖅ ᐆᑦᑑᑎᐅᔪᖅ ᐊᑐᓲ* ᒪᕐᕉᖕᓂᒃ ᐊᒥᐊᕐᓂᒃ ᐊᐅᐸᖅᑐᐃᓐᓇᐅᓪᓗᑎᒃ. ᓯᕗᓪᓕᖅᐹᖅ ᐆᑦᑑᑎ, ᐊᒥᐊᑦ ᐊᔾᔨᖕᒋᙱᑦᑐᑦ ᓴᓂᓕᓇᑎᑕᐅᓂᖏᑦ ᐱᑕᖃᙱᑦᑐᓂ, ᑕᑯᒃᓴᐅᓪᓗᓂ ᓴᓂᒧᑦ ᐊᒥᐊᖏᑦ ᐊᔾᔨᒌᙱᓐᓂᖏᖕᓄᑦ

ᓇᓗᓇᙱᑦᑑᓪᓗᑎᒃ ᐊᒥᐊᖏᑕ ᖃᓄᐃᑦᑑᓂᖏᑦ. ᑭᖑᓪᓕᕐᒥ ᐆᑦᑑᑎᒥ, ᑐᑭᓕᐊᕐᓂᖓ ᐊᒥᐊᑉ ᐊᔾᔨᖏᙱᓐᓂᖏᖕᓄᑦ ᐊᒥᐊᒃ ᐊᔾᔨᖏᙱᑦᑑᒃ ᓴᓂᓕᓈᑎᑕᐅᓯᒪᔪᑦ ᑖᓂᖅᑐᓂᖏᑦ ᐃᓛᒃᑰᖓᓂᖅᓴᐅᓪᓗᑎᑦ, ᑕᒪᒃᑮᓐᓅᖓᓪᓗᑎᑦ ᐅᖓᓯᓐᓂᖅᓴᐅᓪᓗᑎᑦ. ᑕᐃᒪᐃᑕᐅᑎᓪᓗᒍ ᑲᑎᑕᐅᓯᒪᑦᑎᐊᓂᖅᓴᖅ ᐊᒥᐊᒃ ᐊᒻᒪᓗ ᒪᕐᑮᒃ ᐊᒥᐊᒃ ᐊᔾᔨᖏᙱᑦᑑᒃ ᑲᑎᙵᓪᑎᐊᓂᖅᓴᐅᔪᕐᔫᖅᑐᑎᒃ. ᐱᖓᔪᐊᑦ ᑭᐸᓇᑦᑐᖅ ᐊᑐᖅᑐᖅ ᐊᔾᔨᐸᓗᐊᓂᒃ ᐱᐅᓯᑎᑦᑎᒋᐊᕈᓯᕐᒥᒃ, ᑭᓯᐊᓂᓕ ᐱᖃᓯᐅᔾᔨᔪᖅ ᐋᖅᑭᒃᓯᕕᐅᓯᒪᓪᓗᑎᑦ ᐊᒻᒪᓗ ᐋᖅᑭᓱᖅᓯᒪᓂᖏᑦ ᐃᓕᔭᐅᓯᒪᓪᓗᑎᑦ ᐊᔾᔨᖏᑐᐃᓐᓇᙱᑦᑐᑎᑦ ᓱᑯᑦᑎᐊᓃᓐᓂᖏᑦ. ᑕᒪᓐᓇ ᐃᓄᒻᒧᑦ ᐃᓕᔭᐅᓯᒪᔪᑦ ᐊᒥᐊᑦ ᐊᔾᔨᖏᙱᑦᑐᑦ ᓴᓂᓕᓈᑎᑕᐅᓂᖏᑦ ᐱᐅᓯᑎᑦᑎᒋᐊᓲᑦ ᑕᑯᒥᓇᓕᖅᑎᑕᐅᓪᓗᑎᑦᓗ ᐊᔾᔨᙳᐊᖑᔪᓂᑦ. ᑭᖑᓪᓕᖅᐸᖅ ᑭᐸᓇᑦᑐᖅ ᐊᑐᖅᑐᖅ ᖃᓄᐃᓕᐅᕈᓘᔭᓯᒪᔪᑦ ᐊᒥᐊᑦ ᐊᔾᔨᖏᙱᑦᑐᑦ ᓴᓂᓕᓈᑎᑕᐅᓂᖏᖕᓂᒃ, ᐃᓕᔭᐅᓯᒪᓂᖏᑦ ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᑦ ᑭᐸᓇᑦᑐᒡᒍᑏᑦ ᐊᒥᐊᖅᑕᐅᓯᒪᓪᓗᑎᑦ ᐊᔾᔨᖏᙱᑦᑐᑎᒍᑦ, ᑖᓂᖅᑐᓂᖓ ᐊᔾᔨᖏᒃᑲᓗᐊᖅᑐᓂ. ᖃᖓᒍᒃᑲᓐᓂᖅ ᑖᒃᑯᐊ ᑕᑯᒃᓴᐅᑎᑕᐅᓂᖏᑦ ᐋᖅᑭᒃᑕᐅᓯᒪᓪᓗᑎᑦ ᐊᒥᐊᑦ ᑲᑎᑕᐅᓯᒪᔪᑦ, ᓴᓂᓕᓈᑎᑕᐅᓪᓗᑎᓪᓗ ᐊᑐᖅᑕᐅᒍᓐᓇᕐᒥᔪᑦ ᖃᓄᐃᑦᑑᑎᐊᖅᑐᕐᔫᖅᑕᐅᓗᑎᑦ ᐊᔾᔨᙳᐊᖑᔪᑦ.

ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᕐᔭᙱᑦᑐᑦ, ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᕐᔭᙱᑦᑐᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓂᖏᑦ

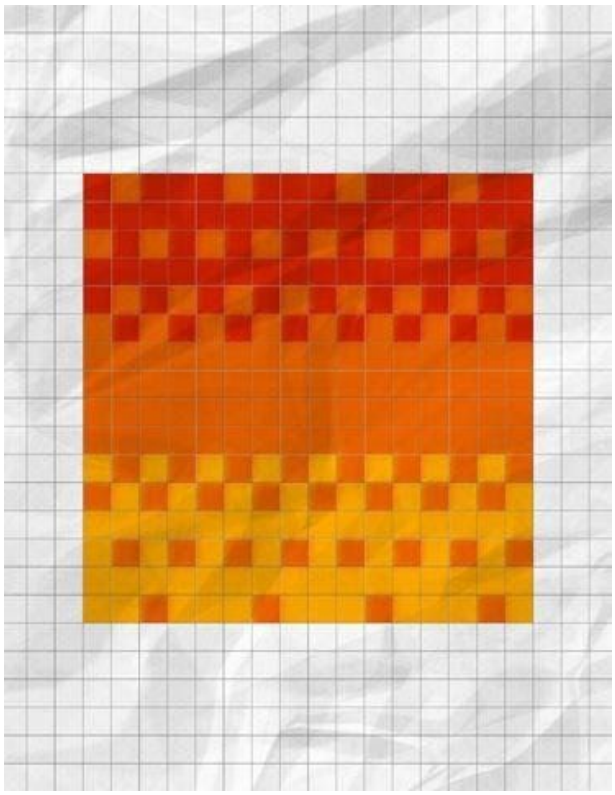
ᐃᓚᖓᓪᓗ ᐱᐅᙱᑎᑦᑎᓕᓲᖅ ᑭᐸᓇᑦᑐᒡᒍᑕᐅᔪᑦ ᐊᒥᐊᖅᑕᐅᓪᓗᑎᑦ ᓴᓇᐅᒐᑦ ᑎᑎᖅᑐᒐᐅᔭᕐᓗᓂ ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᙱᓗᐊᖅᑐᐊᓗᔭᓲᑦ ᐊᑐᖅᑕᐅᓪᓗᑎᑦ ᖃᑦᑏᓐᓇᒡᒍᑏᑦ ᐊᒥᐊᑦ ᐊᒻᒪᓗ ᐊᒥᐊᓇᓪᓗᑎᑦ ᑭᐸᓇᑦᑐᒡᒍᑕᐅᓪᓗᑎᑦ. ᑕᒪᓐᓇ ᑕᑯᒃᓴᐅᓂᖅᓴᐅᑎᑦᑎᔪᖅ ᓴᖑᖓᔪᑦ ᑐᑭᓕᐊᖅᓯᒪᓂᖏᑦ (45 ᑐᑭᓕᐊᖅᓯᒪᓂᖃᙱᑦᑐᑦ) ᐊᒻᒪᓗ ᓴᖑᖓᓂᖏᑦ. ᑐᑭᓕᐊᖅᓯᒪᙱᓗᐊᖅᑑᕐᔭᖅᑐᑦ ᑕᐃᔭᐅᕗᑦ “ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᕐᔭᙱᓗᐊᖅᑐᑎᑦ” “aliasing”. ᑕᐃᒪᐃᕐᑯᓇᒋᑦ. ᑭᐸᓇᑦᑐᒡᒍᑎᕋᓛᓂᒃ ᐊᒥᐊᓇᔾᔨᑦ ᐊᑐᓲᑦ “ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᕐᔭᙱᑦᑐᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓂᖏᑦ” “anti-aliasing”.

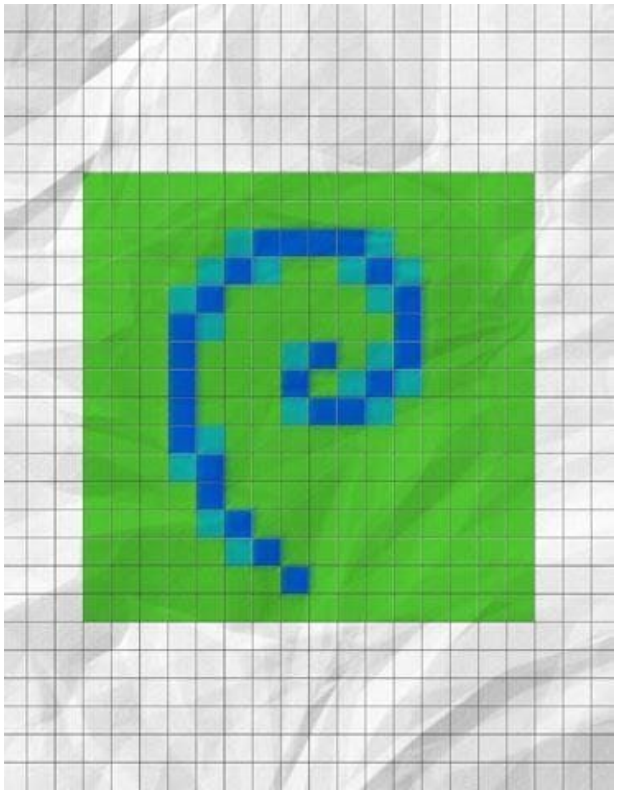


ᐊᔾᔨᙳᐊᕐᒥ ᖁᓛᓂ ᑕᑯᔪᓐᓇᖅᑐᑎᑦ ᖃᓄᖅ ᑐᑭᓕᐊᕐᓂᖓ ᖃᓄᐃᑦᑑᒻᒪᖔᕐᒥᒃ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓚᐅᙱᓐᓂᖓᓂᒃ, ᐊᒻᒪᓗ ᖃᓄᖅ ᑖᓐᓇᓴᐃᓐᓇᖅ ᑐᑭᓕᐊᖅᑐᖅ ᑕᑯᒃᓴᐅᒻᒪᖔᕐᒥᒃ ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᕐᔭᙱᑦᑐᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᑎᓪᓗᒋᑦ, ᐊᒥᐊᑦ ᐊᑐᖅᑕᐅᓗᐊᓲᑦ ᓇᒥᓕᒫᖅ ᐊᑐᖅᑕᐅᕗᑦ ᐊᔾᔨᖏᙱᓐᓂᖏᑦ ᐊᒥᐊᑦ (ᐊᔾᔨᖏᙱᓐᓂᖏᑦ ᖃᐅᒪᓂᖓᓂᒃ) ᐊᑕᐅᓯᙳᕐᔪᒥᔪᕐᔫᖅᑐᕐᓂᐊᕐᒪᑕ ᑐᑭᓕᐊᕐᓂᖓᓂᒃ ᐊᒻᒪᓗ ᐅᖓᓯᖏᓐᓂᖏᑦ ᑎᑎᖅᑕᐅᓯᒪᔪᑦ ᓴᓂᐊᓃᑦᑐᑦ ᐊᑯᕐᖓᖏᓐᓂᒃ. ᑕᕝᕙᓂ ᐆᑦᑑᑎᒥ, ᑖᓂᖅᑐᓂᖅᓴᑦ ᓯᐊᕐᓇᖅ ᐊᒻᒪᓗ ᖃᐅᒪᓂᖅᓴᖅ ᓯᐊᕐᓇᖅ ᑭᐸᓇᑦᑐᓂ ᐊᑐᖅᑕᐅᓲᑦ ᖃᕐᓂᕐᓂᖓ ᑖᓂᖅᑐᓗᐊᕐᓂᐊᙱᒻᒪᑦ ᑐᑭᓕᐊᖅᑐᖅ ᑐᑭᓕᐅᙱᓂᖅᓴᐅᔪᕐᔫᖅᑐᕐᓂᖏᑦ ᑎᓇᖅᑯᖏᖕᓂ ᑕᑯᒃᓴᐅᑖᖑᑎᓪᓗᒋᑦ. ᐊᑑᑎᖃᑦᑎᐊᕈᓐᓇᑐᒻᒪᓇᐅᕗᖅ ᑎᑎᖅᑐᒐᐅᔭᕐᓗᓂ ᐊᒻᒪᓗ ᐊᒥᐊᑦᑎᐊᕐᓗᒋᑦ ᑭᐸᓇᑦᑐᕋᑖᑦ ᐊᒥᐊᖅᑕᐅᓪᓗᑎᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓯᒪᔪᒥᒃ, ᑭᓯᐊᓂᓕ ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᕐᔭᙱᑦᑐᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓗᐊᖅᑎᓪᓗᒋᑦ ᐊᔾᔨᙳᐊᕐᒥᒃ ᐱᐅᙱᓂᖅᓴᐅᓲᖑᓪᓗᑎᑦ ᐅᕝᕙᓘᓐᓃᑦ ᑕᑯᒃᓴᐅᓕᖅᑎᑦᑎᔪᑦ ᐊᒥᐊᖅᑕᐅᔪᑦ ᑭᒡᓕᖏᖕᓂᒃ ᑐᑭᓕᐊᖅᑎᑕᐅᒐᓯᐊᖅᑐᑉ ᐱᓗᐊᓕᖅᑎᑕᐅᓪᓗᑎᑦ.

ᖃᓄᐃᓕᐅᕈᑎᒋᔭᒃᓴᑦ

ᐊᑐᕐᓗᑎᑦ ᑭᐸᓗᕆᑐᓕᓐᓂᒃ ᐸᐃᐸᓗᓂᒃ, ᐃᓕᓐᓂᐊᖅᑏᑦ ᓂᕈᐊᕋᔭᖅᑐᑦ ᒪᕐᕉᓐᓂᒃ ᐱᖓᓱᓂᓘᓐᓃᑦ ᐊᒥᐊᕐᓂᒃ ᐊᒻᒪᓗ ᓇᓗᓇᐃᖅᓯᓗᑎᑦ ᐊᑐᕐᓂᐊᖅᑕᒥᓂᒃ 16x16 ᑭᐸᓗᕆᑐᓂᒃ ᐸᐃᐸᓗᕐᒥᒃ. ᐊᑐᕐᓗᑎᑦ ᐃᓚᖓᓂᒃ ᐊᒥᐊᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᓴᓂᓕᓈᑎᑕᐅᓗᑎᑦ, ᐃᓕᓐᓂᐊᖅᑏᑦ ᑕᐅᑐᙳᐊᕋᓱᐊᓲᑦ ᑲᑎᑕᐅᓗᑎᑦ ᐊᒥᐊᑦ. ᑲᔪᖏᖅᓴᕐᓗᒋᑦ ᐃᓕᓐᓂᐊᖅᑏᑦ ᐊᑲᐅᒃᓴᖅᑐᑦ ᐊᒥᐊᕆᑎᐊᓂᕐᒥᒃ ᖃᕋᓴᐅᔭᒃᑯᑦ ᐃᓚᓯᕐᑯᓗᒋᑦ ᓴᖑᖓᐅᖅᑐᓂᒃ ᑐᑭᓕᐊᖅᑐᓂᓪᓗ ᓴᓂᒧᑦ ᐊᒻᒪᓗᐊ ᑐᕐᓗᑎᑦ ᑭᒡᓕᖏᖕᓂᒃ ᑐᑭᓕᐊᖅᑑᔾᔭᙱᑦᑐ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓗᑎᑦ ᑐᑭᓕᐊᕐᓂᖏᑦ ᑕᑯᒃᓴᐅᓗᐊᖅᑐᐊᓘᔾᔭᕐᓂᐊᙱᒻᒪᑕ.





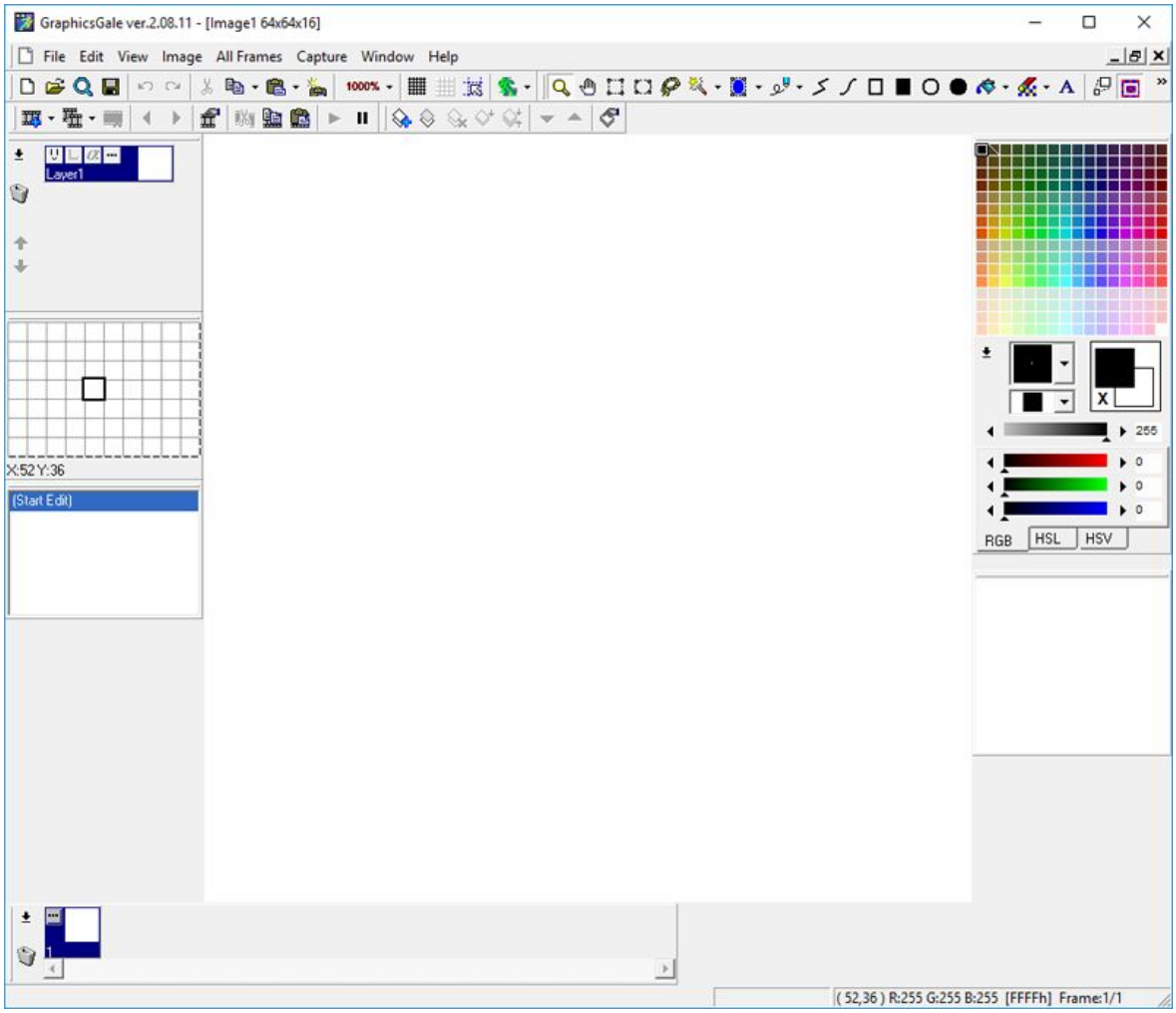
ᖃᕋᓴᐅᔭᒃᑯᑦ ᖃᓄᐃᓕᐅᕈᑎᒋᔭᒃᓴᑦ

ᐅᕝᕙ ᐅᑯᐊ ᖃᑦᑎᓐᓇᐅᒐᓗᐊᑦ ᐆᑦᑑᑏᑦᐊᖏᓂᖅᓴᑦ ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᑦ ᑭᑉᐹᓇᑦᑐᒡᒍᑕᐅᓪᓗᑎᑦ ᐊᒥᐊᖅᑕᐅᓯᒪᔪᑦ ᐊᔾᔨᙳᐊᑦ ᐊᑐᖅᑕᕕᓂᐅᓪᓗᑎᑦ ᓴᓇᑦᑎᐊᕐᓗᓂ ᖃᓄᐃᓕᐅᕈᑎᒋᔭᒃᓴᑦ ᐅᖃᐅᑕᐅᖅᑲᐅᔪᑦ:

ᐆᒪᔪᙳᐊᓂᒃ ᓴᓇᓂᖅ

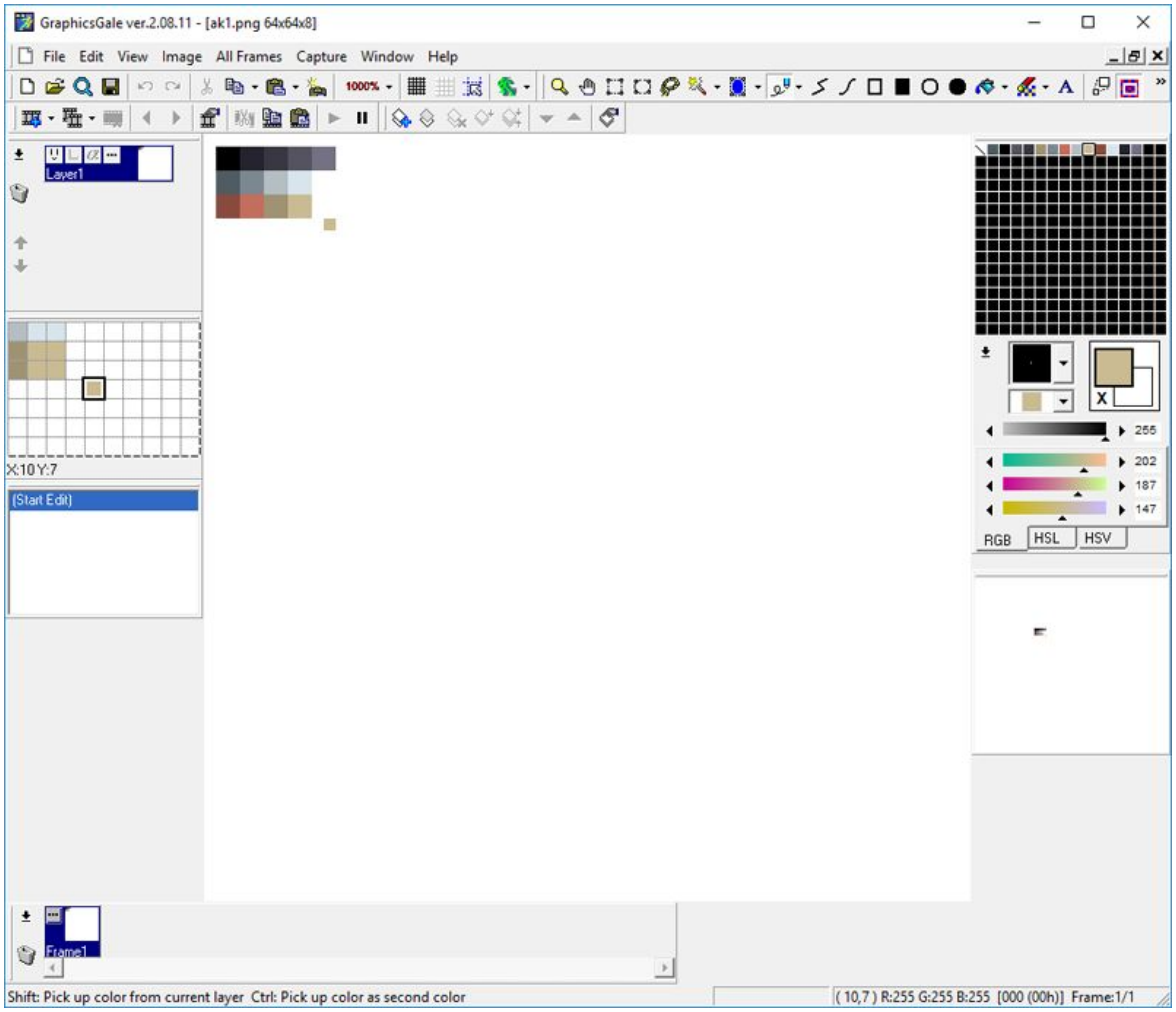
ᐊᑐᖅᑐᒋᑦ ᑎᑎᖅᑐᒐᐅᔭᕐᔪᑏᑦ ᖃᕋᓴᐅᔭᒃᑯᑦ ᐊᒥᐊᓇᓗᓂ ᒫᓐᓇᓕ ᑕᐃᒪ ᐊᖏᓂᖅᓴᒥᒃ ᖃᕋᓴᐅᔭᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᓐᓇᕐᓂᐊᓕᖅᑐᑎᑦ ᐆᒪᔪᙳᐊᕐᓂᒃ. ᐊᒃᓱᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓂᐊᓕᖅᑐᖅ ᐅᑯᓂᖓ ᐆᑦᑑᑎᐅᔪᓂᒃ. ᐃᓕᓐᓂᐊᖅᑏᑦ ᓂᕈᐊᕈᓐᓇᕐᒥᔪᑦ ᐆᒪᔪᓪᓚᑦᑖᕐᒥᒃ, ᐅᓂᒃᑲᐅᓯᑐᖃᕐᒥᒃ, ᐅᕝᕙᓘᓐᓃᑦ ᓴᓇᓗᑎᑦ ᐃᓱᒪᒋᔭᒥᓂᒃ ᒪᓕᓪᓗᑎᑦ. ᐃᓕᓐᓂᐊᖅᑏᑦ ᖃᐅᔨᓴᕈᓐᓇᑦᑎᐊᕐᓂᐊᖅᑐᑦ ᑲᑎᑕᐅᓗᑎᑦ ᐊᒥᐊᑦ, ᐊᒥᐊᓕᖅᑕᐅᒃᑲᓐᓂᕐᓗᑎᑦ, ᐊᒻᒪᓗ ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᔾᔭᖏᑦᑐᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓗᑎᑦ ᐊᖏᓂᖅᓴᒥ ᑎᑎᖅᑐᒐᐅᔭᕐᕕᒻᒥ ᓴᓇᓂᐊᕐᒪᑕ ᐊᒥᐊᑦᑎᐊᓇᑦᑐᓂᒃ ᐊᔾᔨᙳᐊᕐᒥ.

ᐱᒋᐊᕐᑯᓪᓗᑎᑦ, ᒪᑐᐃᕐᓗᒍ ᖃᕋᓴᐅᔭᕐᒧᑦ ᑎᑎᖅᑐᒐᐅᑎ ᒍᕝᐱᒃᓴᐃᔪᓪ ᐊᒻᒪᓗ ᓇᕿᓪᓗᒍ CTRL+N ᒪᑐᐃᖅᓯᓂᐊᕋᕕᑦ ᓄᑖᕐᒥᒃ ᑎᑎᖅᑐᒐᐅᔭᕐᕕᒃᓴᒥᒃ. ᐋᖅᑭᓪᓗᒍ ᖁᑦᑎᓐᓂᖓ ᐊᒻᒪᓗ ᓴᓂᒧᑦ ᑐᑭᓂᖓ 64x64 ᑭᐸᓇᕐᑐᕋᓛᑦ ᐊᒻᒪᓗ ᓇᕿᒻᒥᓗᒍ OK. ᐊᖏᓪᓕᒋᐊᕐᑯᓪᓗᒍ ᑕᑯᒃᓴᐅᓂᖓ ᑎᑎᖅᑐᒐᐅᔭᕐᕕᑉ ᐊᒻᒪᓗ ᐊᑐᕐᑯᓪᓗᒍ ᓴᖅᑭᑲᐅᑎᒋᔾᔪᑎ ᐊᖏᓪᓕᒋᐊᕈᑎᖓᑕ ᓂᕈᐊᕋᒃᓴᖏᑦ ᑕᑯᒃᓴᐅᒍᓐᓇᐅᑎᖓ ᐃᒪᓐᓇᓅᖓᑎᓪᓗᒍ 1000%.



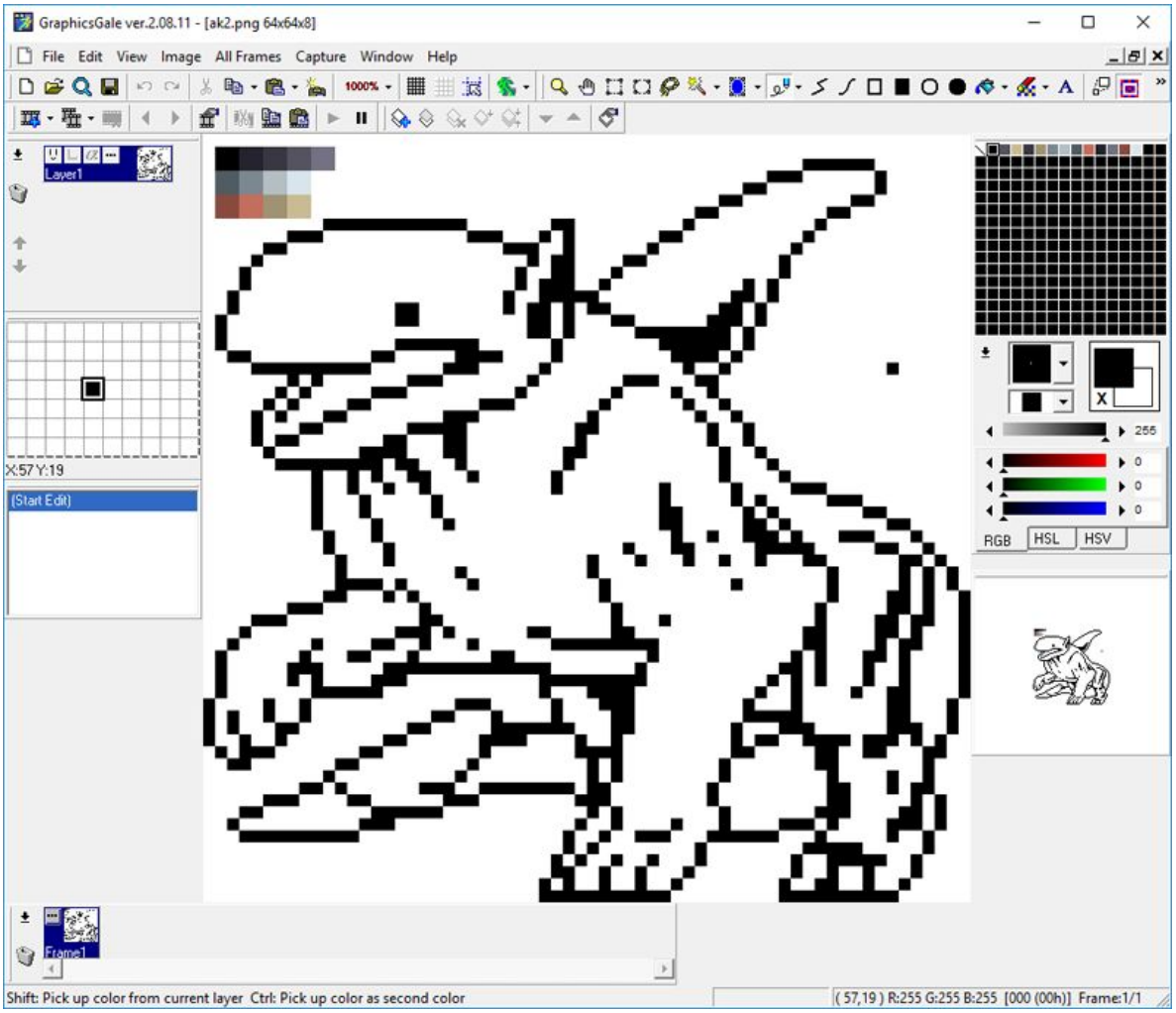
ᐋᖅᑭᒃᓗᑎᑦ ᐊᒥᐊᕐᓂᒃ 15-ᖑᓗᑎᑦ ᐊᒥᐊᖏᑦ ᑎᑎᕋᐅᑎᒋᓂᐊᖅᑕᑎᑦ. ᐃᓱᒪᒃᓴᖅᓯᐅᕐᓗᑎᑦ ᐱᐅᔫᓂᖓᑕ ᐊᒥᐊᑦᑎᐊᕈᑎᑉ ᐊᑐᕆᐊᖃᕐᓂᐊᖅᑕᑎᑦ ᑕᒪᒃᑮᓐᓄᑦ ᑎᑎᖅᑐᒐᐅᔭᕐᓗᑎᑦ ᐊᒻᒪᓗ ᐊᒥᐊᕆᑦᑎᐊᕐᓗᑎᑦ. ᓂᕈᐊᕐᓗᑎᑦ ᐊᒥᐊᖏᖅᓂᒃ ᓇᕿᓪᓗᒍ ᐊᒥᐊᕈᑏᑦ ᑕᑯᒃᓴᐅᑎᑦᑎᒍᑎᖓ ᑕᓕᖅᐱᐊᓃᑦᑐᖅ ᑕᑯᒃᓴᐅᑎᑦᑎᒍᑎᒥ ᖃᕋᓴᐅᔭᒃᑯᑦ (ᐋᖅᑭᒋᐊᕐᓗᒍ ᐊᒥᐊᖓ ᐊᑐᕐᓗᑎᑦ ᐊᓪᓕᕐᒦᑦᑐᓂᑦ ᐊᑐᕋᒃᓴᑦ ᐊᑐᕆᐊᖃᕈᕕᒋᑦ) ᐊᒻᒪᓗ ᐊᑐᕐᒥᓗᒍ ᑎᑎᕋᐅᑎ

Palette Window ᑎᑎᖅᑐᒐᐅᔭᕐᑯᓪᓗᑎᑦ ᐃᓚᖏᖅᓂᒃ ᑭᐸᓇᕐᑐᑦ ᐊᒥᐊᖏᖅᓂᒃ ᑎᓇᖅᑯᐊᓂ ᑎᑎᖅᑐᒐᐅᔭᕐᕕᑉ. ᑕᒪᓐᓇ ᐃᑲᔪᕐᓂᐊᖅᑐᖅ ᐃᓚᖅᓂᒃ ᐊᑐᕈᓐᓇᑲᐅᑎᒋᓗᑎᑦ ᐊᒥᐊᕐᓂᒃ ᐅᐊᕐᑎᐊᕈᒃᑲᓐᓂᖅ.



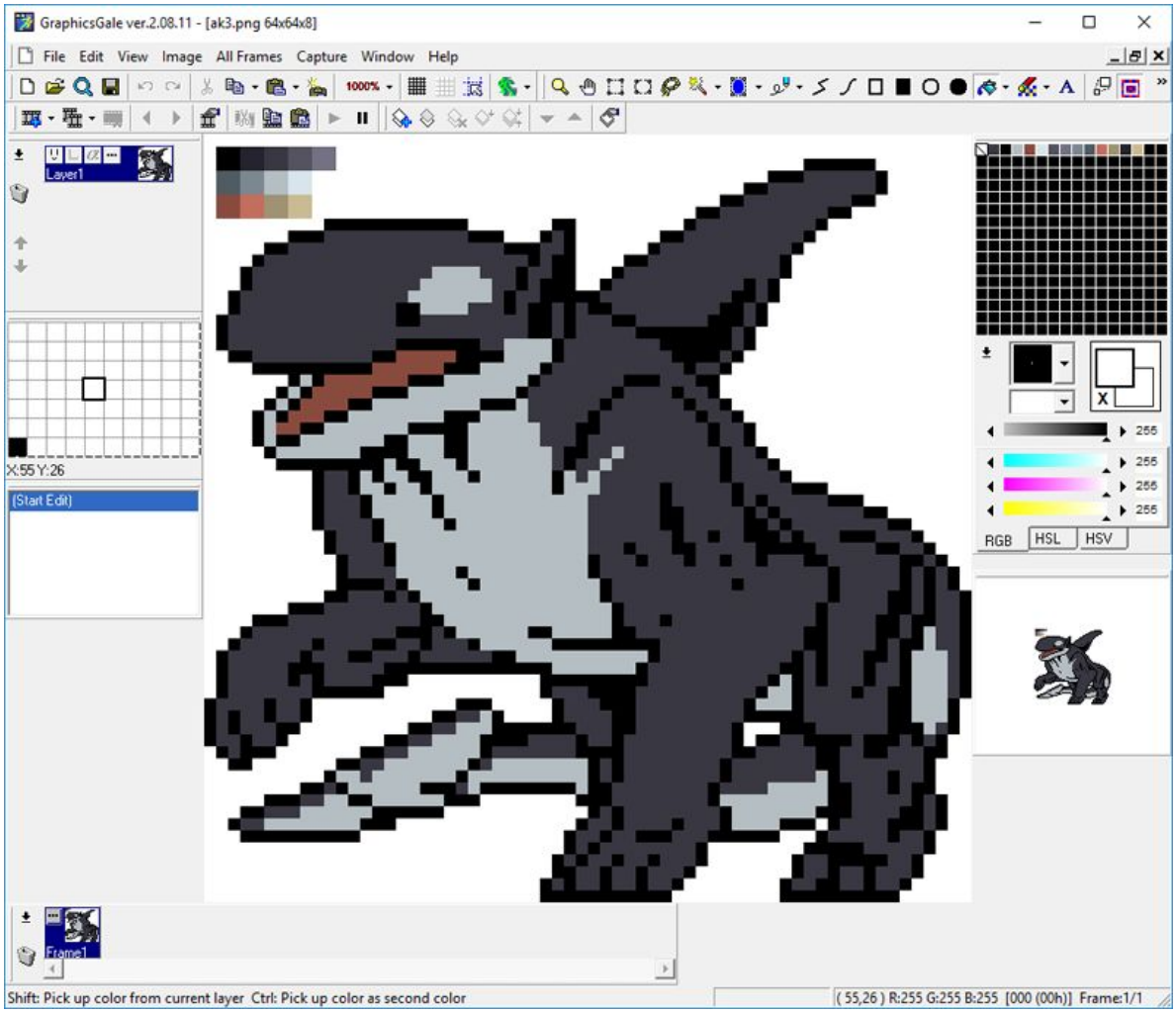
ᐊᑐᕐᓗᑎᑦ ᑎᑎᕋᐅᑎᒥᒃ ᓴᓇᒋᐊᓯᓗᒍ ᑎᑎᖅᑐᒐᐅᔭᕐᓗᒍ ᐆᒪᔪᙳᐊᑦ. ᒪᕐᕉᒃ ᓴᓇᓗᑎᑦ ᐊᑐᕈᓐᓇᑖᒃᑭᒃ ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᖅ ᑭᐸᓇᕐᑐᒡᒍᑕᐅᓪᓗᑎᑦ ᓴᓇᙳᐊᖅᑏᑦ ᐊᑐᓲᑦ ᑭᒡᓕᓕᐅᕐᓗᒍ ᑎᑎᖅᑐᒐᐅᔭᕐᓂᐊᖅᑕᐃᑦ. ᐃᓚᖏᑦ ᐱᒋᐊᓲᑦ ᖃᓄᐃᑦᑑᓂᐊᕐᓂᖓᓂᒃ ᑎᑎᕋᐅᔭᖅᑳᖅᑐᒋᑦ, ᐋᖅᑭᒋᐊᖅᑕᐅᓪᓗᑎᑦ ᐊᒻᒪᓗ ᐊᒥᐊᖅᐸᓪᓕᐊᓕᖅᑐᒋᑦ, ᓲᕐᓗᒃ ᐊᒥᐊᓇᓗᓂ ᐊᒥᐊᕈᑎᑐᐃᓐᓇᕐᓂᒃ. ᐊᓯᖏᑦ ᐊᑐᓲᑦ ᐊᒥᐊᓇᔪᖅᑎᑐᑦ ᐊᒥᐊᕈᑎᓪᓚᑦᑖᕐᓂᒃ ᐊᑐᖅᑐᖃᖅᑎᓪᓗᒍ ᐆᑦᑐᕋᖅᑐᑎᑦ ᐊᒻᒪᓗ ᐊᒥᐊᓇᒥᐊᕐᓗᑎᑦ ᐃᓗᓕᖏᖕᓂᒃ ᐊᒥᐊᑦᑎᐊᕐᓂᐊᑐᐃᓐᓇᕐᓗᑎᑦ ᒥᑭᔫᑕᐅᓂᖅᓴᑦ ᐊᒻᒪᓗ ᑐᑭᓕᐊᖅᑐᑦ ᑭᖑᓂᐊᒍᑦ. ᓇᓕᐊᑐᐃᓐᓇᖅ ᐊᒥᐊᓇᔾᔪᓲᑦ ᐊᑐᕐᓗᑎᑦ ᖃᓄᐃᖏᓚᖅ ᐊᒻᒪᓗ ᖃᐅᔨᒐᔭᖅᑐᑎᑦ ᓇᓕᐊ ᐊᑲᐅᒋᓛᓇᒻᒪᖔᖅᐱᐅᒃ ᖃᐅᔨᓴᕈᕕᑦ.

ᑎᑎᕋᐅᑎ ᐊᑐᖅᑎᓪᓗᒍ, ᑕᓕᖅᐱᐊ-ᓇᕿᓪᓗᒍ Pencil Tool ᓇᕿᑎᒐᕋᓛᖅ ᐊᕕᖕᒐᖕᙳᐊᖓ ᖃᕋᓴᐅᔭᐅᑉ ᓂᕈᐊᕋᔭᖅᑐᖅ ᓄᑖᕐᒥᒃ ᓯᕗᐊᓂ ᐊᒥᐊᖑᒐᔭᖅᑐᒥ ᑕᐃᑲᖕᒐ ᓂᕈᐊᕐᓗᒍ ᐊᒥᐊᕈᑎᓂᑦ, ᓴᐅᒥᐊ ᓇᕿᓪᓗᒍ ᑎᑎᕋᐅᔭᕋᔭᖅᑐᖅ ᐊᑐᕐᓗᓂ ᑕᐃᔅᓱᒥᖓ ᐊᒥᐊᕐᒥᒃ ᓂᕈᐊᖅᓯᒪᔭᕐᓂᒃ. “ᐸᐅᖏᔭᕐᓗᒍ” ᑭᐸᓇᕐᑐᖅ, ᓂᕈᐊᕐᓗᒍ ᑐᓄᐊᓃᓐᓂᖅᓴᖅ ᐊᒥᐊᖓ ᐊᒻᒪᓗ ᐸᐃᖏᔭᕐᓗᑎᑦ ᑭᐸᓇᕐᑐᕋᓛᑦ ᐲᔭᕐᓗᑎᑦ ᐊᒥᐊᖃᕐᑯᖏᑕᑎᑦ.



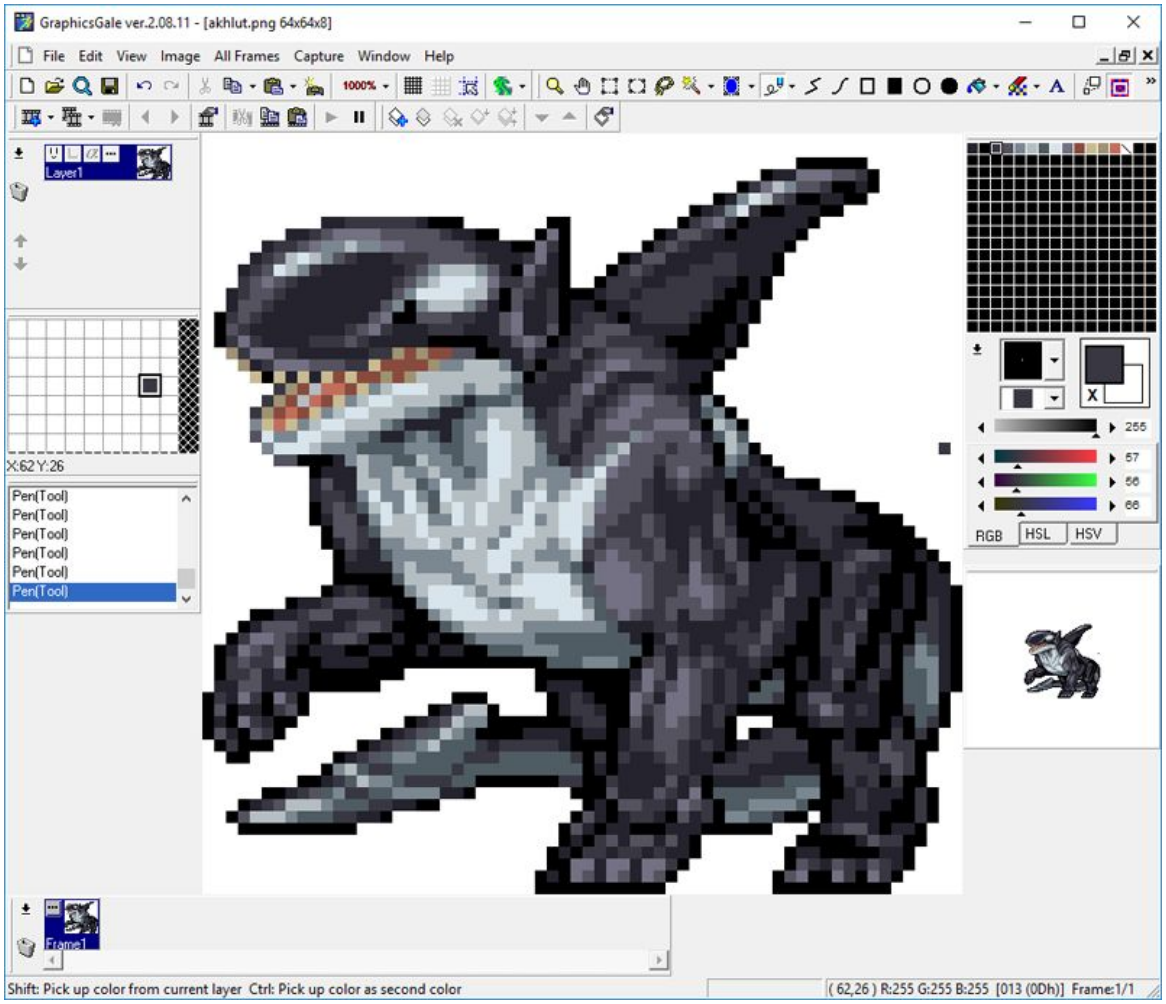
ᐊᑐᕐᓗᒍ ᐃᒻᒪᐃᒍᑎ Flood Fill Tool CTRL+Z/CTRL+Y ᑎᑎᕋᐅᔭᕐᓗᒍ ᐊᔾᔨᖓᓂᒃ ᐃᒻᒪᕐᑯᓪᓗᒋᑦ ᐃᓗᐊᓃᑦᑐᑦ ᐊᒥᐊᕐᒧᑦ. ᐊᑑᑎᐅᒍᓐᓇᕐᒥᔪᖅ ᑕᒪᓐᓇ ᓱᑲᑦᑐᒃᑯᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᓐᓇᕐᑯᓪᓗᑎᑦ. ᑭᓯᐊᓂᓕ, ᑕᒪᐃᓐᓂ ᐊᒥᐊᙱᒃᑯᑎᑦ, ᐊᒥᐊᖅ "ᐃᒻᒪᓗᐊᕋᔭᕐᒪᑦ" ᐊᒥᐊᖃᕐᑯᙱᑦᓄᑦ. ᑕᐃᒪᐃᒃᑯᓂ ᑕᒻᒪᕈᕕᓪᓗᓐᓃᑦ, ᓇᕿᓪᓗᒍ CTRL+Z/CTRL+Y ᐋᔭᕐᑯᓪᓗᒋᑦ/ᐊᒥᐊᒃᑲᓐᓂᕐᑯᓪᓗᒋᑦ ᕐᑯᔭᓈᕈᓂ/ᐱᒃᑲᓐᓂᕈᑎ ᓇᕿᑎᒐᖏᑦ ᑕᐃᑲᓂ

ᐊᑐᖅᑕᐅᒍᒪᓲᑦ ᓇᓗᓇᐃᒃᑯᑕᖏᖕᓂᒃ .



ᑎᑎᖅᑐᒐᐅᔭᐃᓐᓇᕐᓗᑎᑦ ᐊᒻᒪᓗ ᐊᒥᐊᓈᓐᓇᕐᓗᑎᑦ ᓈᒻᒪᒋᓕᕋᓱᓐᓂᙱᓂ ᑎᑎᕋᐅᔭᖅᑕᐃᑦ. ᐆᑦᑐᕋᕐᓗᑎᑦ ᐃᓚᙱᓐᓂᒃ ᑎᑎᕋᐅᔭᕐᓂᕐᒧᑦ ᐊᑐᖅᑕᐅᓲᓂᒃ ᖃᕋᓴᐅᔭᒃᑯᑦ ᐃᓕᓐᓂᐊᖅᑲᐅᔭᑦᑎᓐᓂᒃ, ᓲᕐᓗᒃ ᑭᒡᓕᙱᑦ ᑐᑭᓕᐊᖅᑑᔭᙱᑦᑐᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓂᙱᑦ, ᐊᒥᐊᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᓴᓂᓕᓈᑎᑕᐅᓂᙱᑦ, ᐅᕝᕙᓘᓐᓃᑦ ᓂᕈᐊᕐᓗᑎᑦ ᑭᒡᓕᖓᓂᒃ ᐋᖅᑭᒋᐊᖅᑎᑦᑎᒍᑎᙱᑦ, ᐊᒻᒪᓗ ᖃᐅᔨᓗᑎᑦ ᖃᓄᖅ ᐊᑦᑐᐃᓂᖃᕋᔭᕐᒪᖔᕐᒥᒃ ᑎᑎᖅᑐᒐᐅᔭᖅᓯᒪᔭᕐᓂᒃ. ᐱᔭᕇᕈᕕᑦ, ᐅᕗᖓᕐᓗᑎᑦ ᐸᐃᑉᐹᒃᑯᕕᒃ >ᑐᖅᑯᕐᓗᒍ File >Save As, ᐊᑦᑎᕐᓗᒍ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐃᑦ, ᓂᕈᐊᕐᓗᒍ ᓱᑯᑦᑎᐊᓄᑦ ᑐᖅᑯᕐᓂᐊᕐᒪᖔᖅᐱᐅᒃ, ᐊᒻᒪᓗ ᓂᕈᐊᕐᓗᒍ .png (ᐊᓯᐊᓅᖅᑎᒐᒃᓴᖅ ᖃᕋᓴᐅᔭᓕᕆᔾᔪᑎᒥᒃ ᐊᔾᔨᙳᐊᑦ) ᐸᐃᑉᐹᒃᑯᕕᑉ ᖃᓄᐃᑦᑑᓂᖓᓄᑦ, ᓇᕿᓕᕐᒥᓗᒍ ᑐᖅᑯᕐᓗᒍ Save.

ᐃᓱᓕᑦᑎᓪᓗᒍ ᐃᓕᓐᓂᐊᕈᑎᒃᓴᖅ ᐃᓕᓐᓂᐊᖅᑏᑦ ᑲᑐᔾᔨᓗᑎᑦ ᐊᓯᖏᓐᓄᑦ ᐃᓕᓐᓂᐊᖅᑎᓄᑦ ᓴᓇᔭᒥᓂᕐᒥᓂᒃ, ᐅᖃᐅᔾᔭᐅᑦᑎᐊᕋᔭᕐᓗᑎᑦ ᖃᓄᐃᓕᐅᒃᑲᓐᓂᕈᓐᓇᕐᒪᖔᕐᒥᒃ ᐱᐅᓯᑎᑦᑎᒋᐊᕐᓗᓂ, ᐊᒻᒪᓗ ᐅᖃᐅᓯᖃᕐᓗᑎᑦ ᓇᓕᐊᓐᓂᑐᐃᓐᓇᖅ ᐊᒃᓱᕈᕈᑎᒋᔭᒥᓂᕐᒥᓂᒃ.



ᐃᓱᓕᓐᓂᖓ

ᐃᓕᓐᓂᐊᖅᑏᑦ ᓇᓂᓯᒐᔭᖅᑐᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᓯᕋᒥᒃ ᐅᖃᐅᑕᐅᓯᒪᓪᓗᑎᑦ ᑕᕝᕙᓂ ᐃᓕᓐᓂᐊᕋᒃᓴᒥ ᐊᑑᑎᖃᐅᖅᑐᑦ ᑕᒪᐃᓐᓂ ᐊᔾᔨᙳᐊᓕᐊᓇᔪᓐᓇᖅᑕᒥᓂᒃ ᐊᑐᕐᓗᑎᑦ ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᖅ ᑭᐸᓗᕐᑐᒡᒍᑕᑦ. ᐃᓚᖏᑦ ᑎᑎᖅᑐᒐᐅᔭᕈᓰᑦ ᖃᐅᔨᓴᖅᑕᐅᔪᑦ ᑕᕝᕙᓂ ᐃᓕᓐᓂᐊᕋᒃᓴᒥ, ᐱᓗᐊᖅᑐᒥᒃ ᑭᒡᓕᖏᑦ ᑐᑭᓕᐊᖅᑑᔾᔭᖏᑦᑐᑦ ᐊᒥᐊᑦᑎᐊᖅᑕᐅᓪᓗᑎᑦ, ᐱᔭᕆᐊᑐᓂᖅᓴᐅᕗᑦ ᑎᑎᖅᑐᒐᐅᔭᑐᐃᓐᓇᕐᓗᓂ ᓴᓂᐊᓂ, ᑭᓯᐊᓂᓕ ᐆᑦᑐᕋᖃᑦᑕᕐᓗᑎᑦ ᐊᒻᒪᓗ ᐱᓕᖅᑭᑦᑖᖃᑦᑕᕐᓗᑎᑦ ᐃᖅᑲᓇᐃᔾᕆᑦᑎᐊᓕᕈᓐᓇᖅᑕᖏᑦ ᐱᖕᒍᐊᒐᒃᓴᓂᒃ ᓴᓇᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᖃᕋᓴᐅᔭᓕᕆᔾᔪᑎᓄᑦ ᐃᓗᓕᒃᓴᖏᖕᓂᒃ. ᑐᙵᕕᖏᑦ ᐊᒥᐊᕆᑦᑎᐊᕐᓗᓂ ᐅᖃᐅᑕᐅᓯᒪᔪᑦ ᐊᑐᕋᒃᓴᐅᕗᑦ ᑎᑎᖅᑐᒐᐅᔭᖅᑕᐅᓗᑎᑦ ᐊᒻᒪᓗ ᐱᓪᓚᑦᑖᙳᐊᕐᔫᔭᖅᑐᓂᒃ ᐋᖅᑭᒃᓱᐃᓗᓂᓗ.

ᐃᑲᔫᑎᒃᓴᑦ

ᐃᑲᔫᑎᒃᓴᒃᑲᓐᓃᑦ

- ᐊᒡᒐᒧᑦ ᐊᑐᖅᑕᐅᓪᓗᑎᑦ ᑭᒡᓕᖕᒋᑦ ᑐᑭᓕᐊᖅᑑᔾᔭᙱᑦᑐᑦ ᐊᒥᐊᓇᑦᑎᐊᕐᓗᓂ (ᑕᑯᓂᐊᕐᕕᐅᑉ ᐊᖅᑯᑎᖓ: http://gas13.ru/v3/tutorials/handmade_antialiasing.php)
- ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᑦ ᑭᐸᓛᕐᑐᒡᒍᑕᐅᓪᓗᑎᑦ ᓴᓇᙳᐊᕐᓂᖅ ᐊᒻᒪᓗ ᐊᒥᐊᑦ ᐊᔾᔨᒌᙱᑦᑐᑦ ᓴᓂᓕᓈᑎᑕᐅᓂᖕᒋᑦ (ᑕᑯᓂᐊᕐᕕᐅᑉ ᐊᖅᑯᑎᖓ: http://www.drububu.com/tutorial/pixel-art-and-dithering.html)
- ᐊᔾᔨᙳᐊᓕᐅᕈᑎᕋᓛᑦ ᑭᐸᓛᕐᑐᒡᒍᑕᐅᓪᓗᑎᑦ ᐃᓕᓐᓂᐊᕈᑎᒃᓴᑦ ᐱᒋᐊᓕᓵᖅᑐᓄᑦ (ᑕᑯᓂᐊᕐᕕᐅᑉ ᐊᖅᑯᑎᖓ: https://www.deviantart.com/gasara/art/Pixel-Art-Tutorial-Basics-for-Beginners-356743783)

ᖃᕋᓴᐅᔭᒃᑯᑦ ᐃᓅᖃᑎᒌᒍᓐᓇᐅᑏᑦ ᐃᑲᔫᑏᑦ

- 80.lv – ᖃᕋᓴᐅᔭᒃᑯᑦ ᑕᕐᓇᔾᔭᒃᓴᓂᒃ ᑕᑯᒃᓴᐅᑎᑦᑎᒍᑎ ᐱᙳᐊᒐᒃᓴᓂᒃ/ᓴᓇᙳᐊᕐᓂᕐᒧᑦ ᐃᓕᓐᓂᐊᕋᒃᓴᑦ, ᑎᑎᖅᑐᒐᐅᔭᖅᑎᓄᑦ ᐊᔾᔨᒌᙱᑦᑐᓂᒃ ᐊᔪᙱᓐᓂᖃᐅᖅᑐᓂᒃ ᓴᓇᓗᑎᑦ (ᑕᑯᓂᐊᕐᕕᐅᑉ ᐊᖅᑯᑎᖓ: https://www.youtube.com/channel/UCI8IFII7_0xU9Dc60xoZuiA)